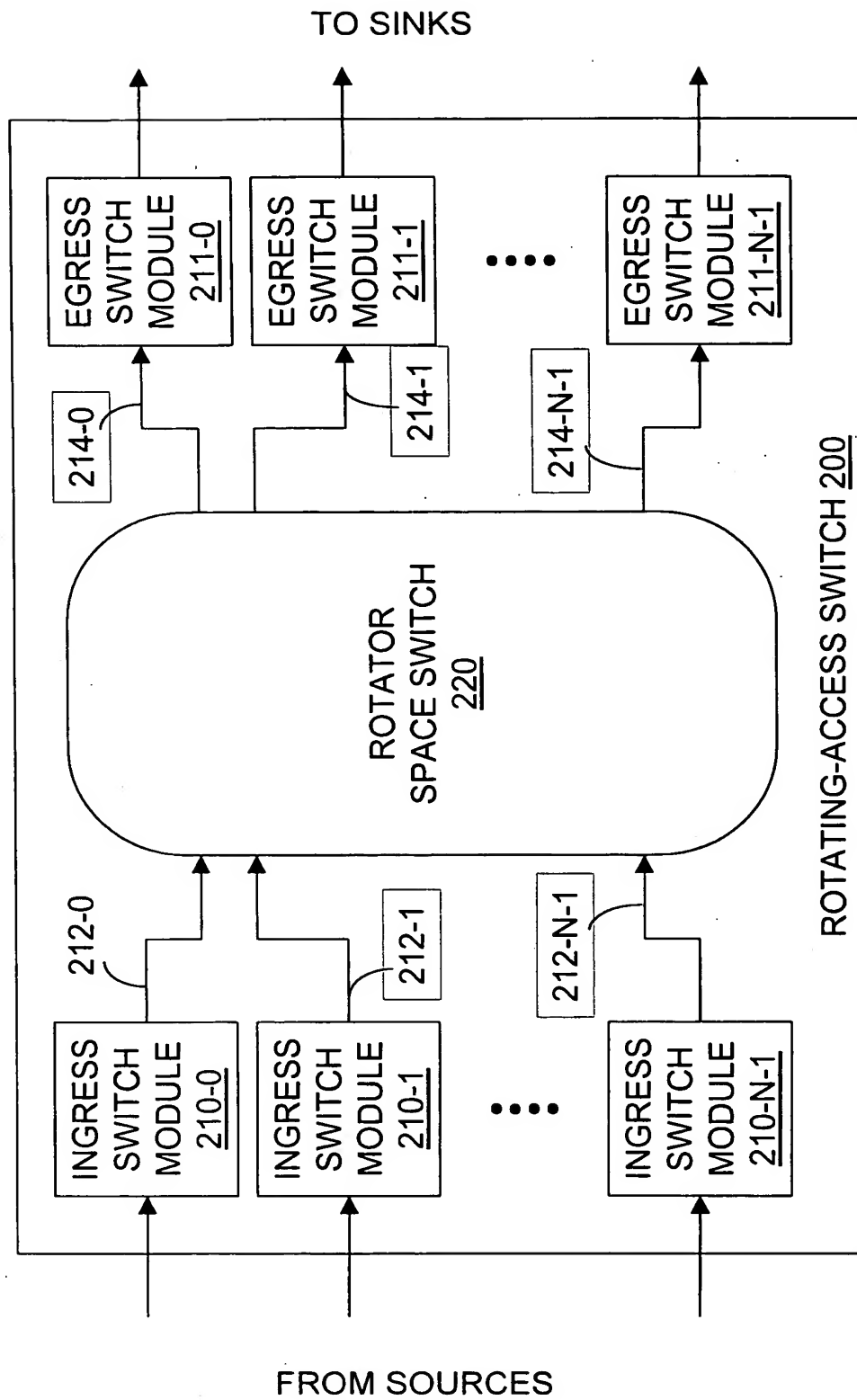


PRIOR ART

FIG. 1



PRIOR ART **FIG. 2**

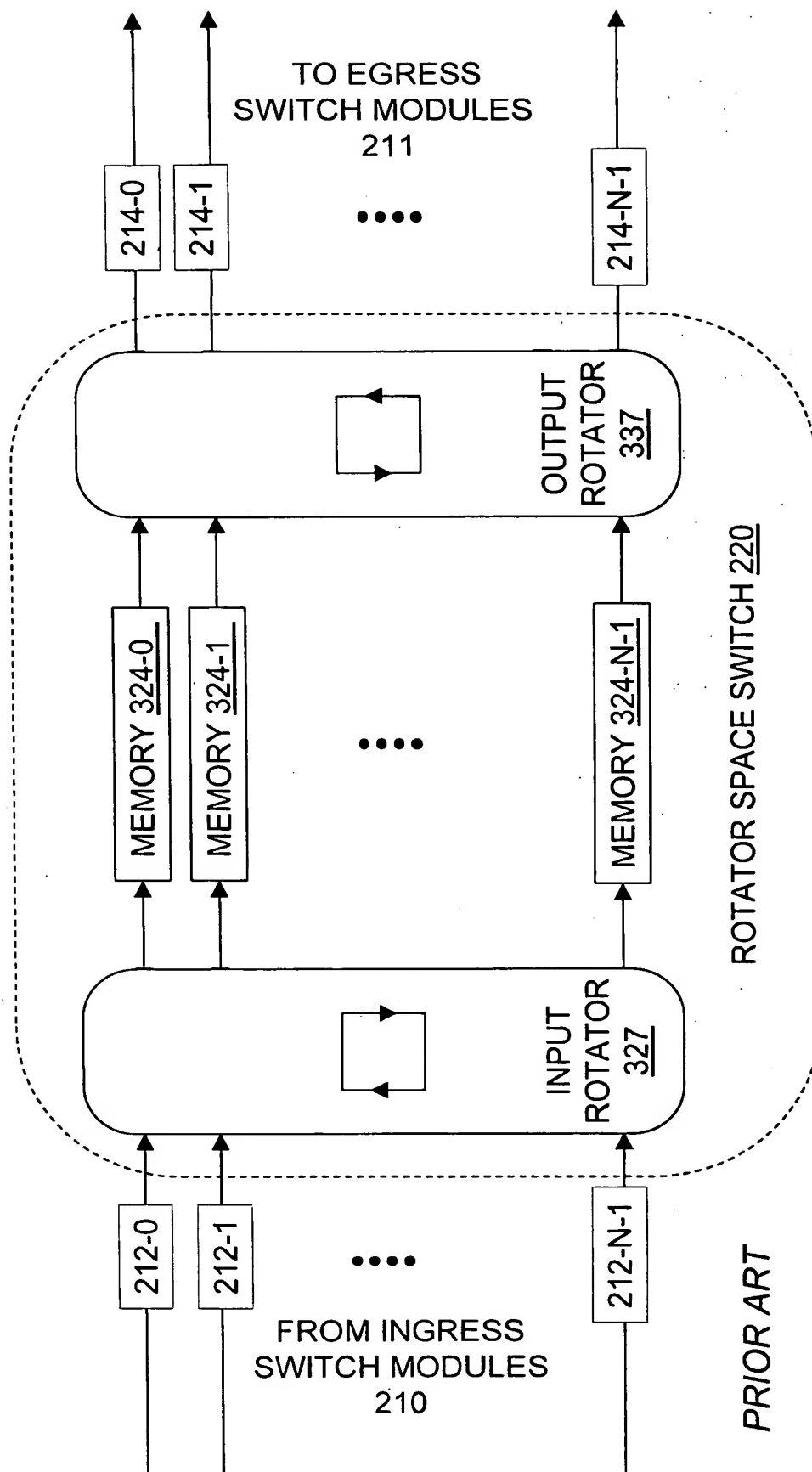


FIG. 3

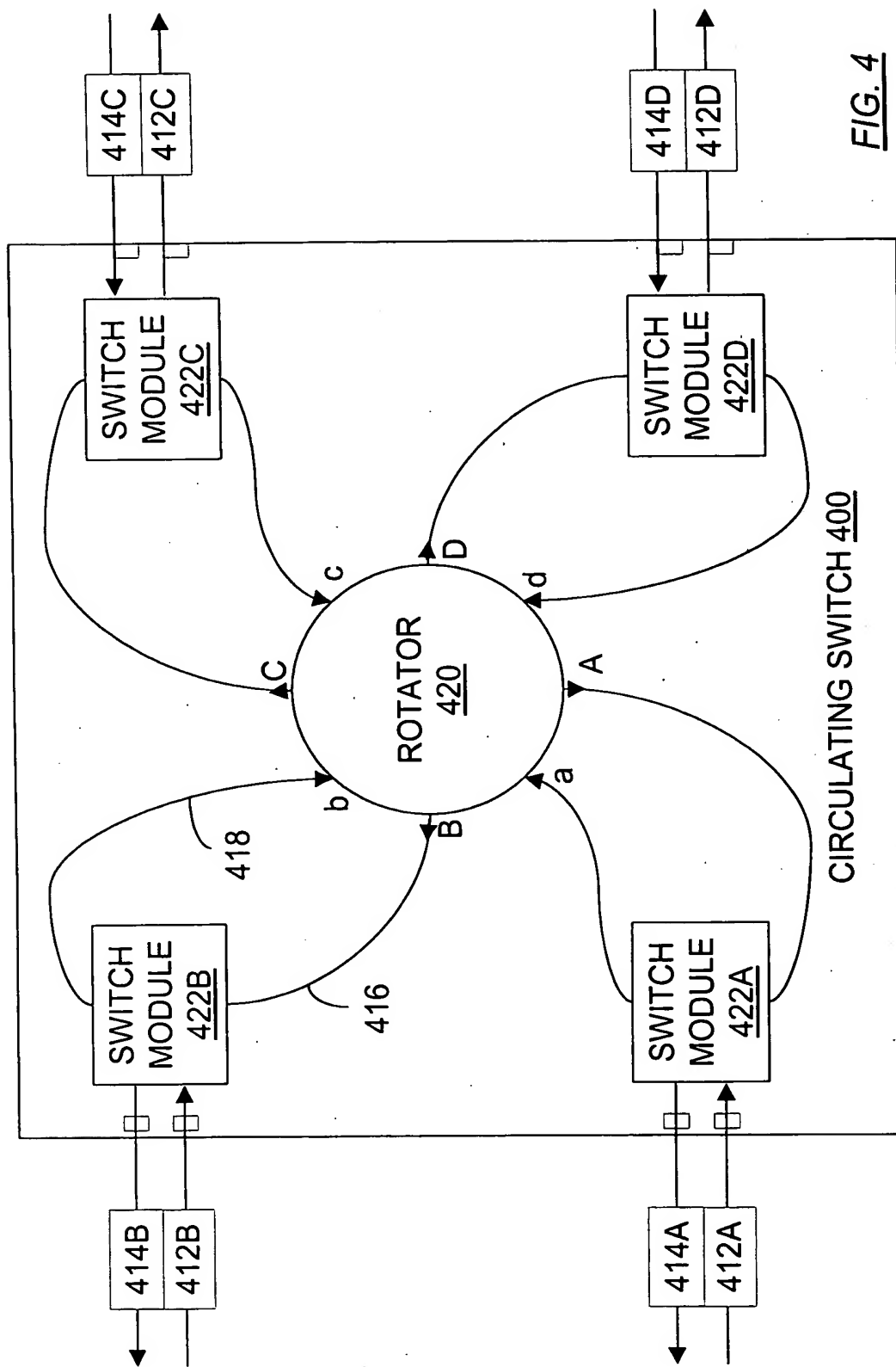
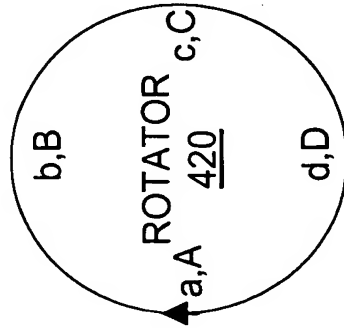
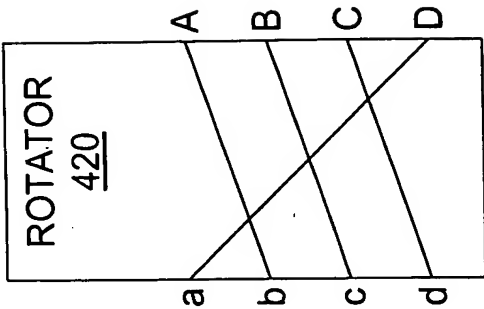
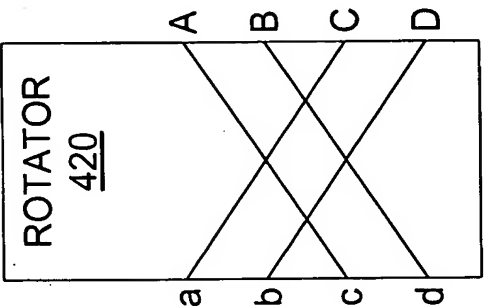
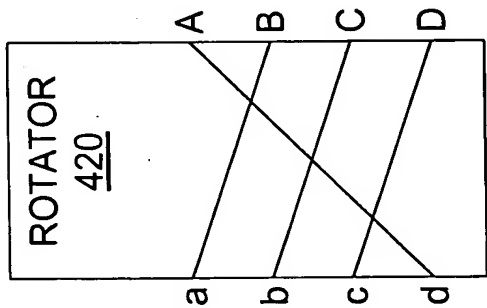
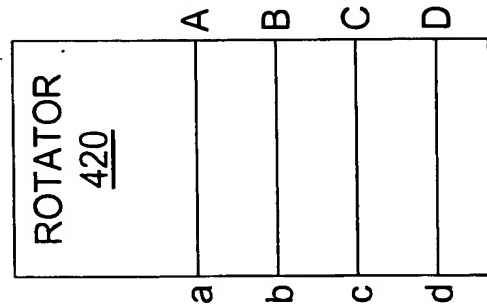
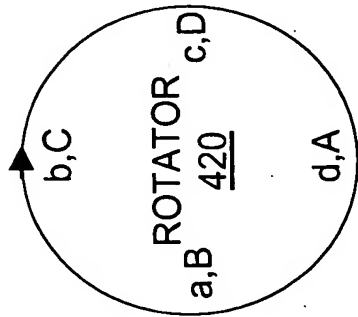


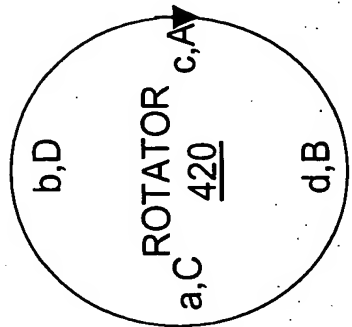
FIG. 4



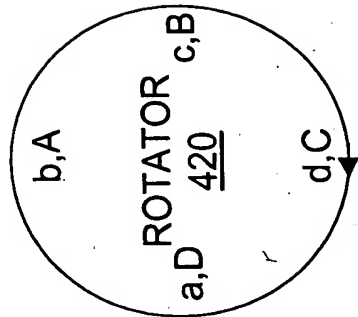
PHASE-0
552



PHASE-1
554



PHASE-2
556



PHASE-3
558

FIG. 5

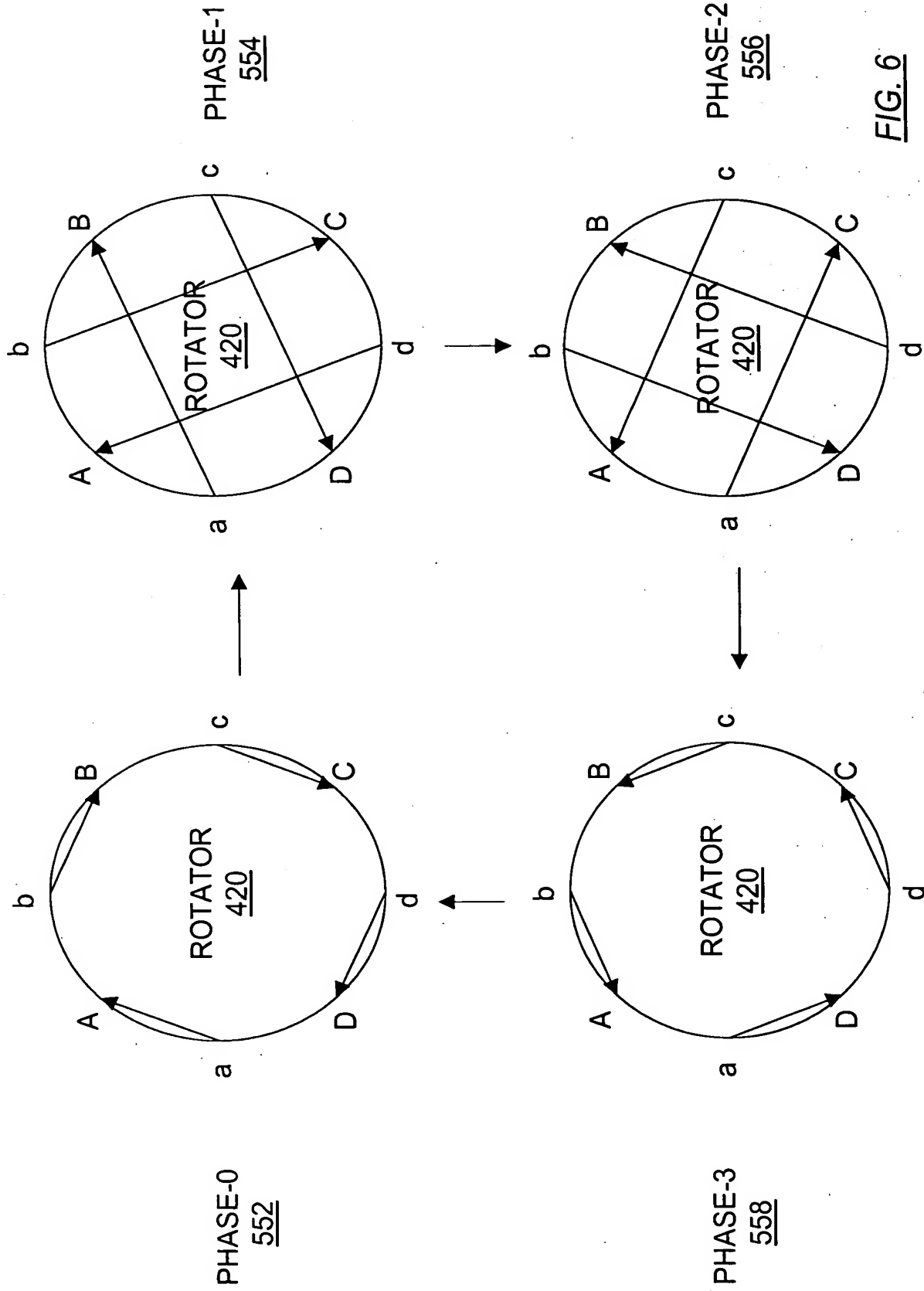


FIG. 6

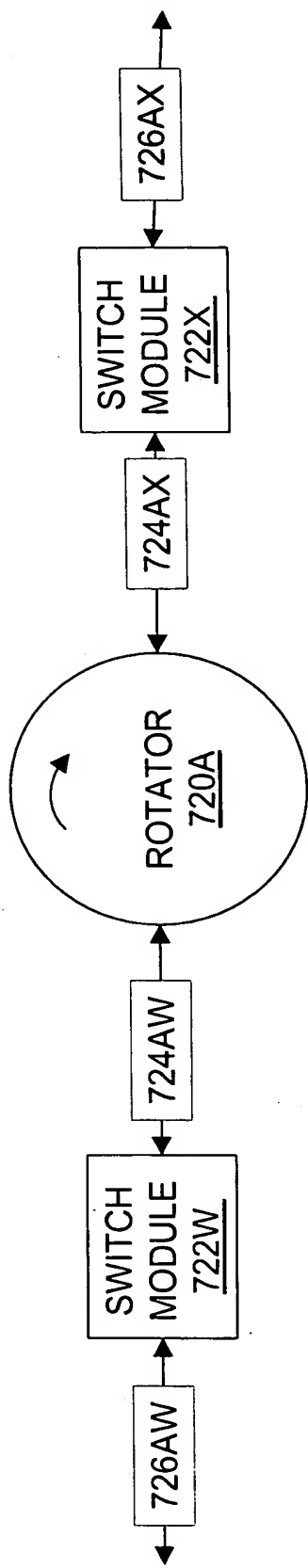


FIG. 7A

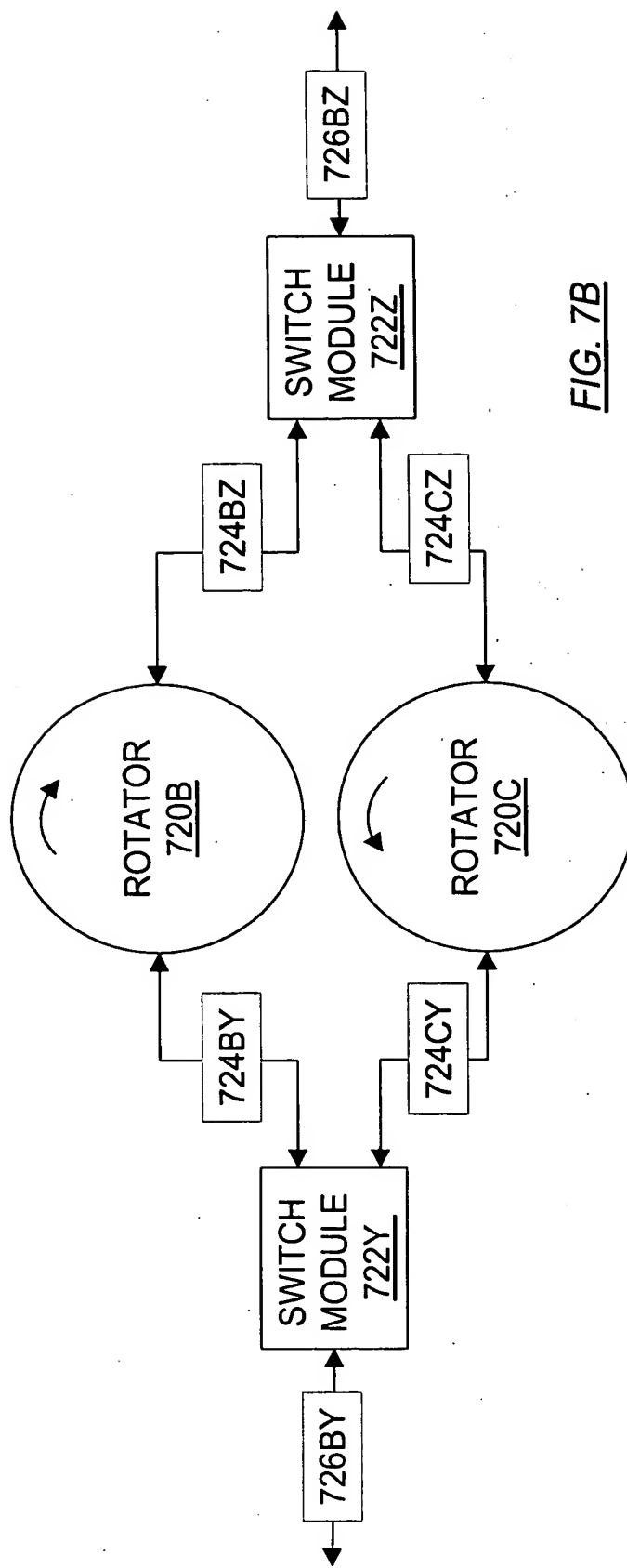


FIG. 7B

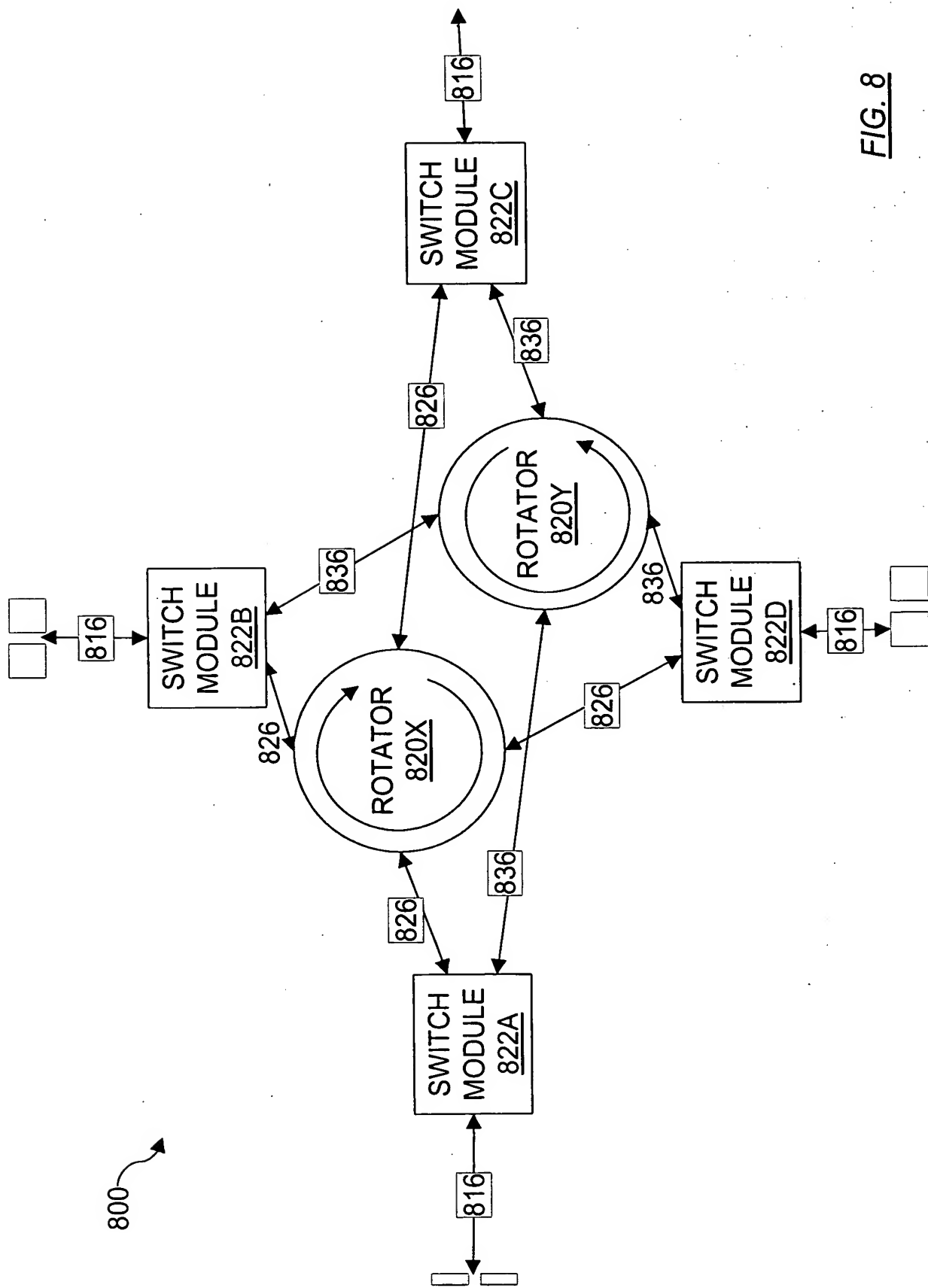
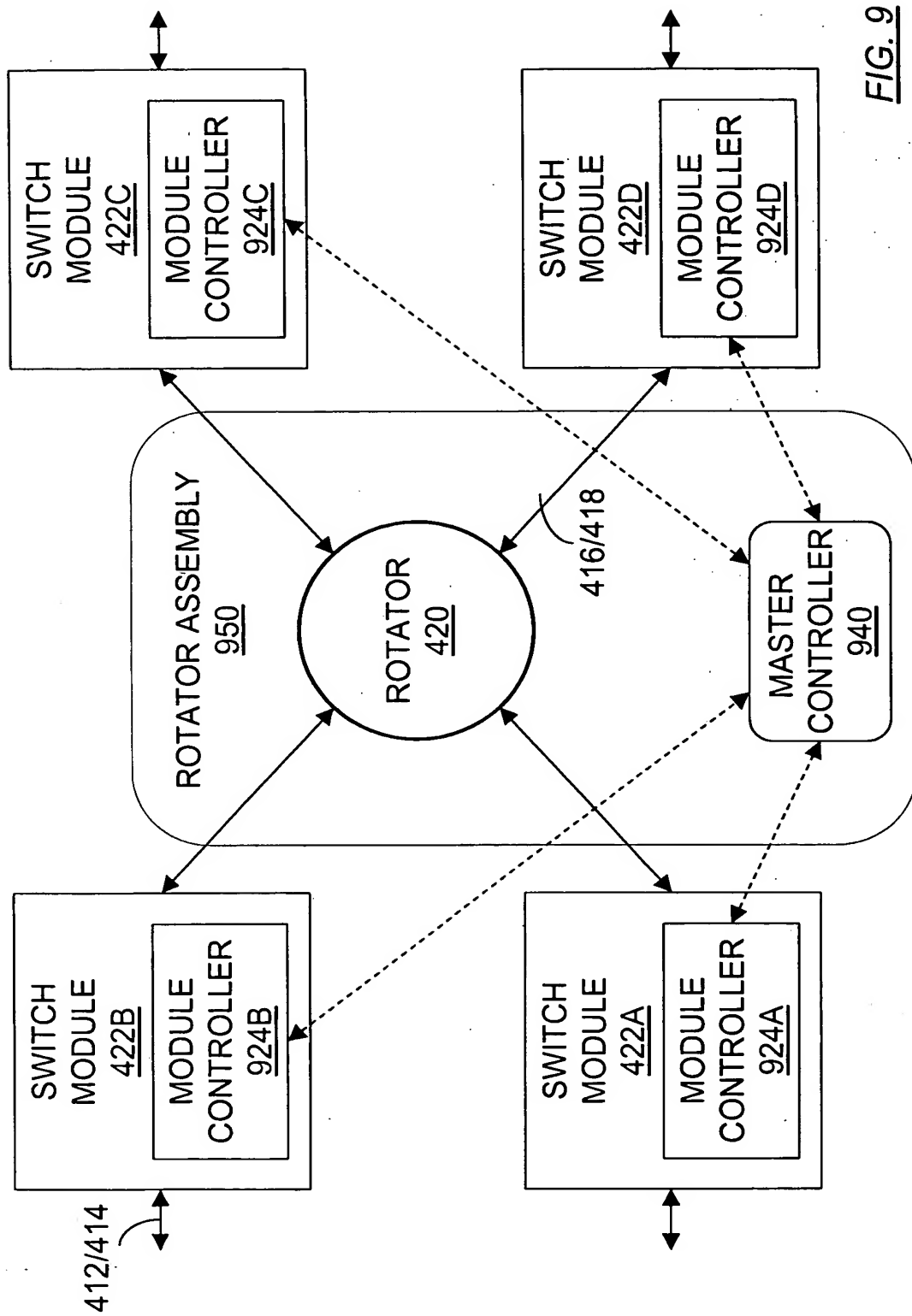


FIG. 8



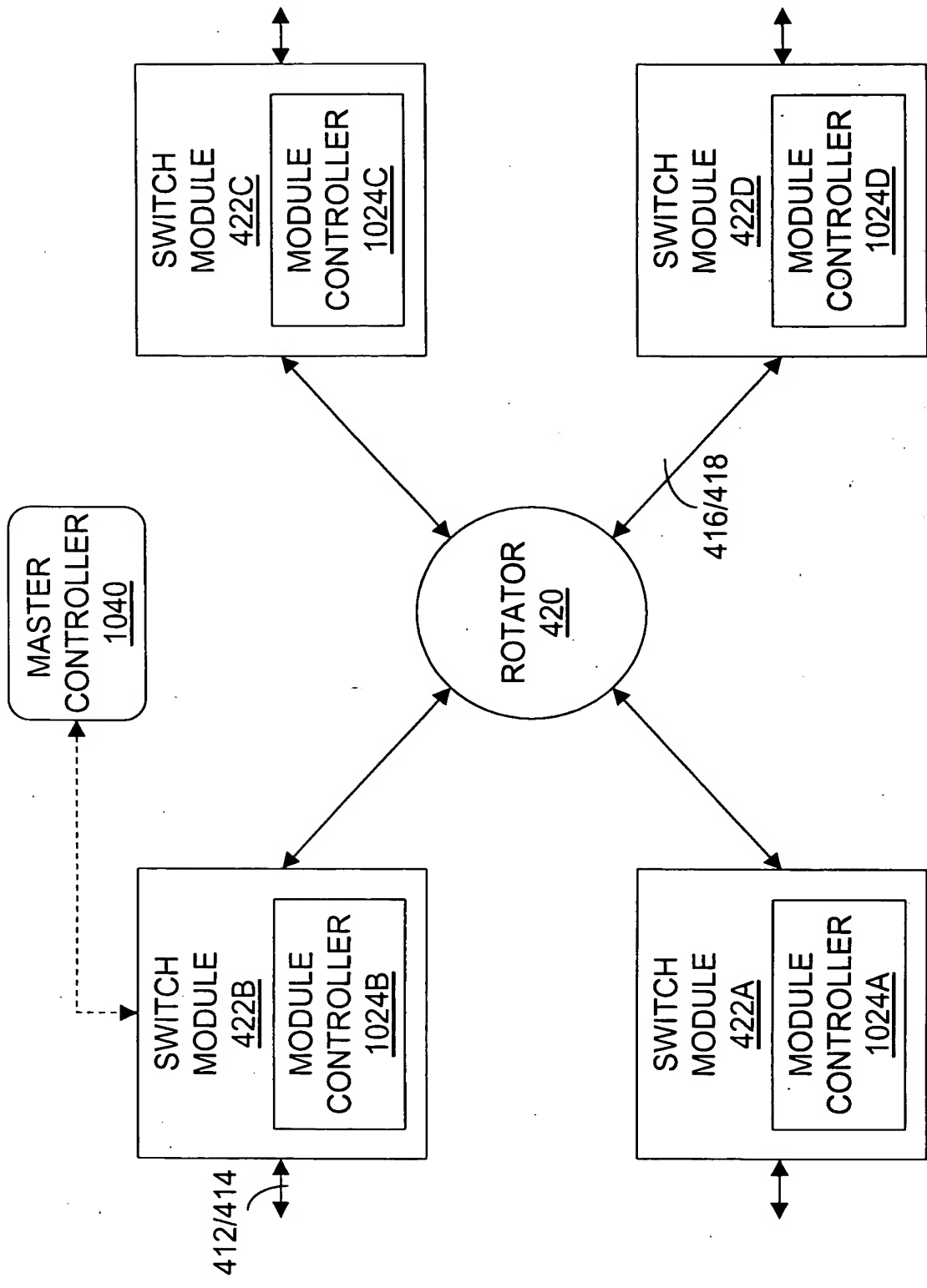


FIG. 10.

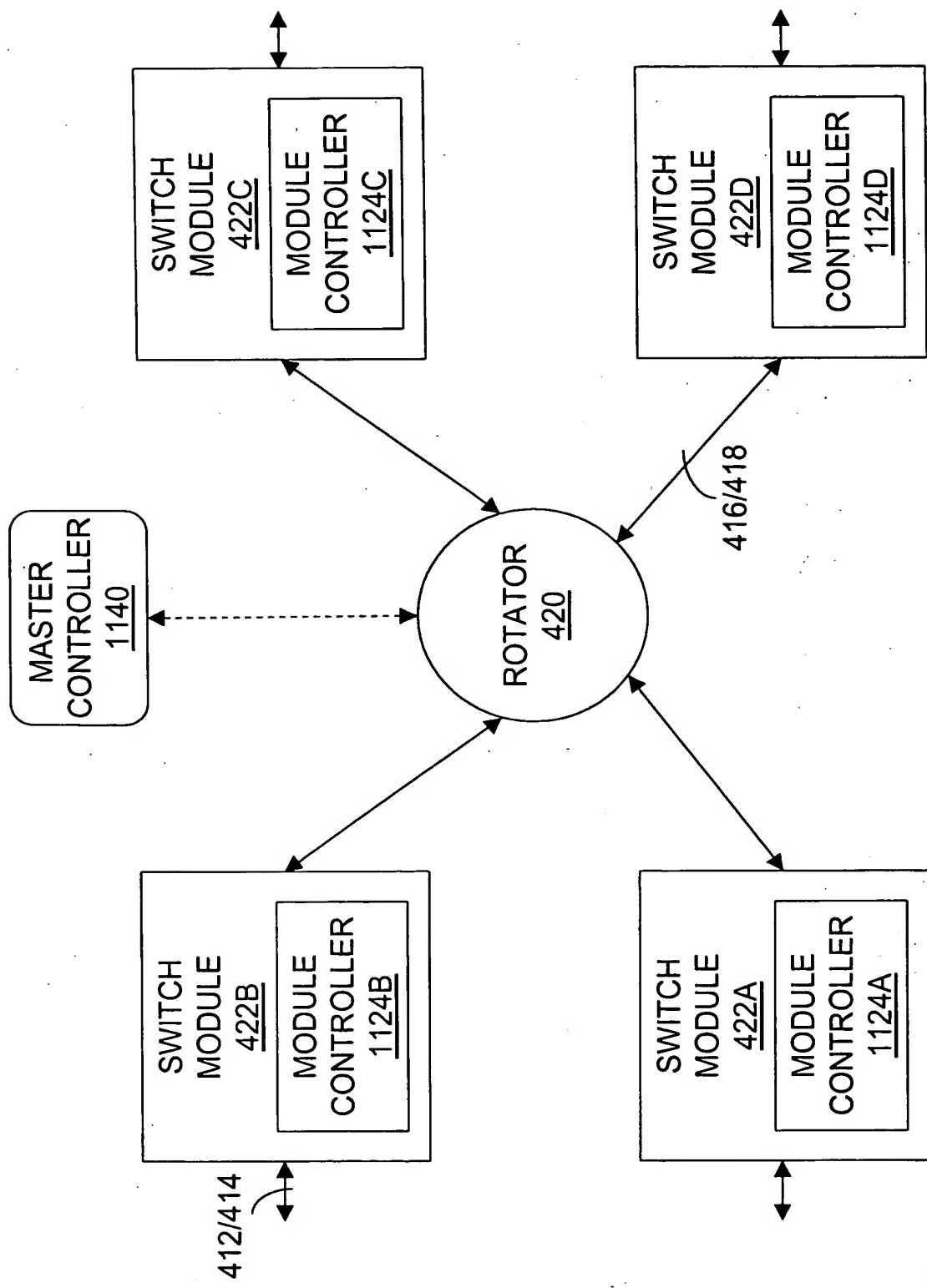


FIG. 11

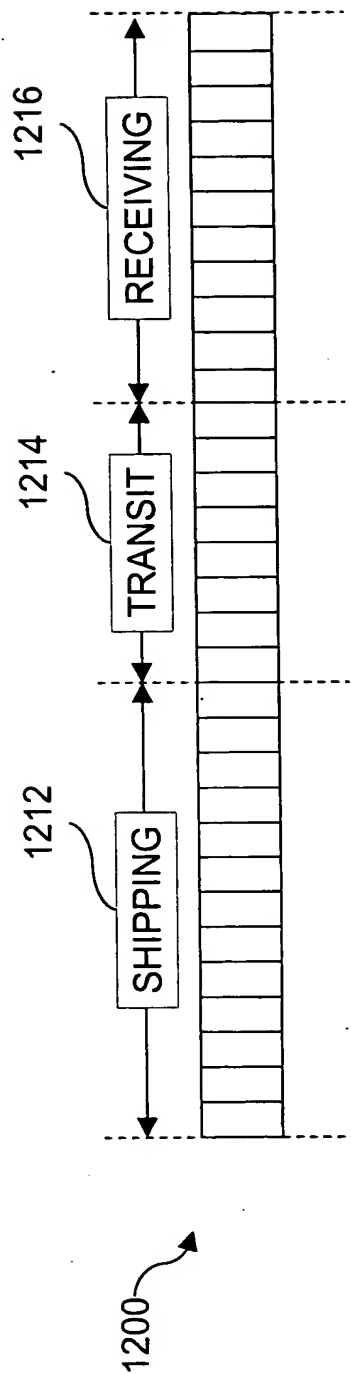


FIG. 12

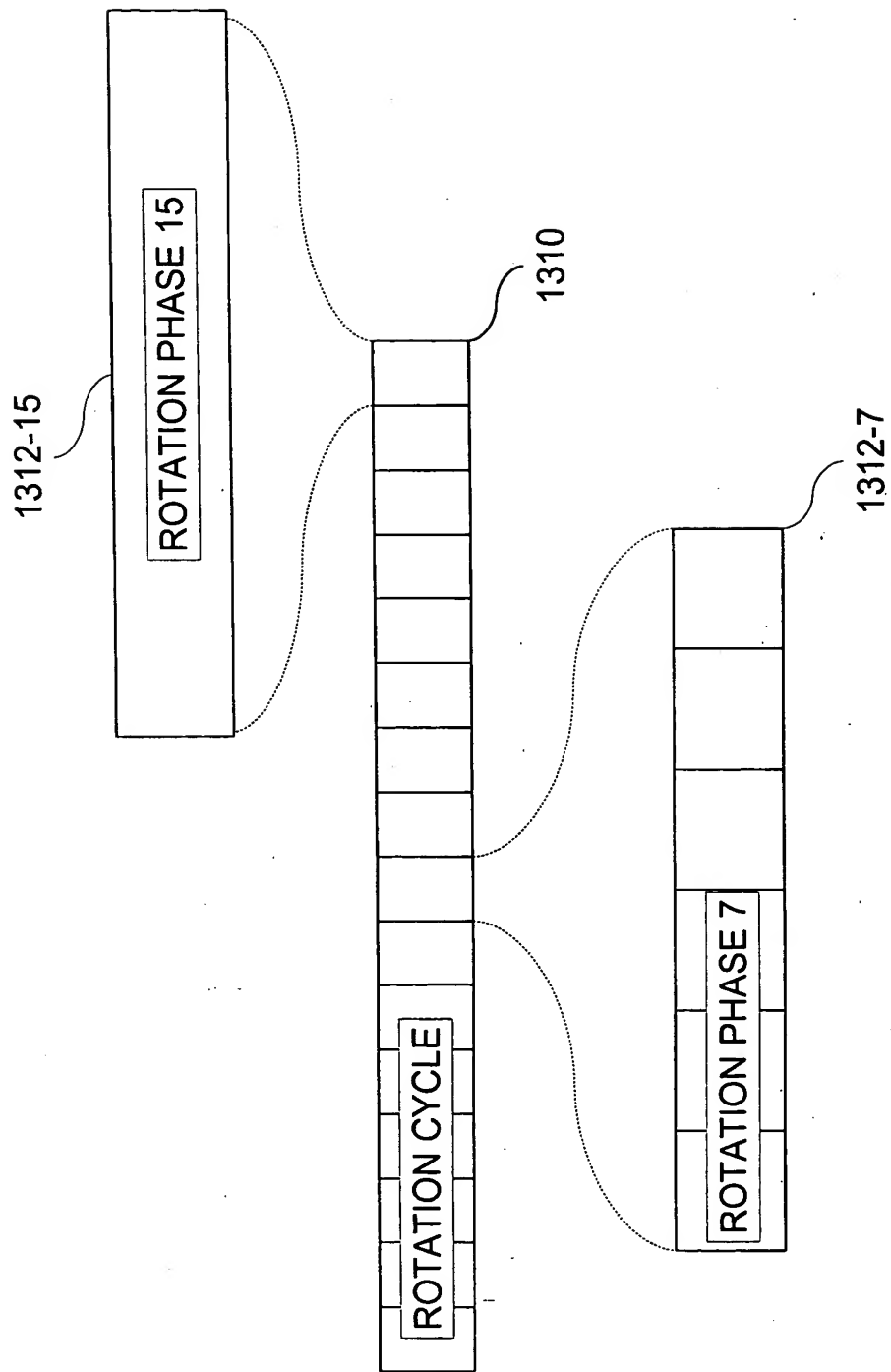


FIG. 13

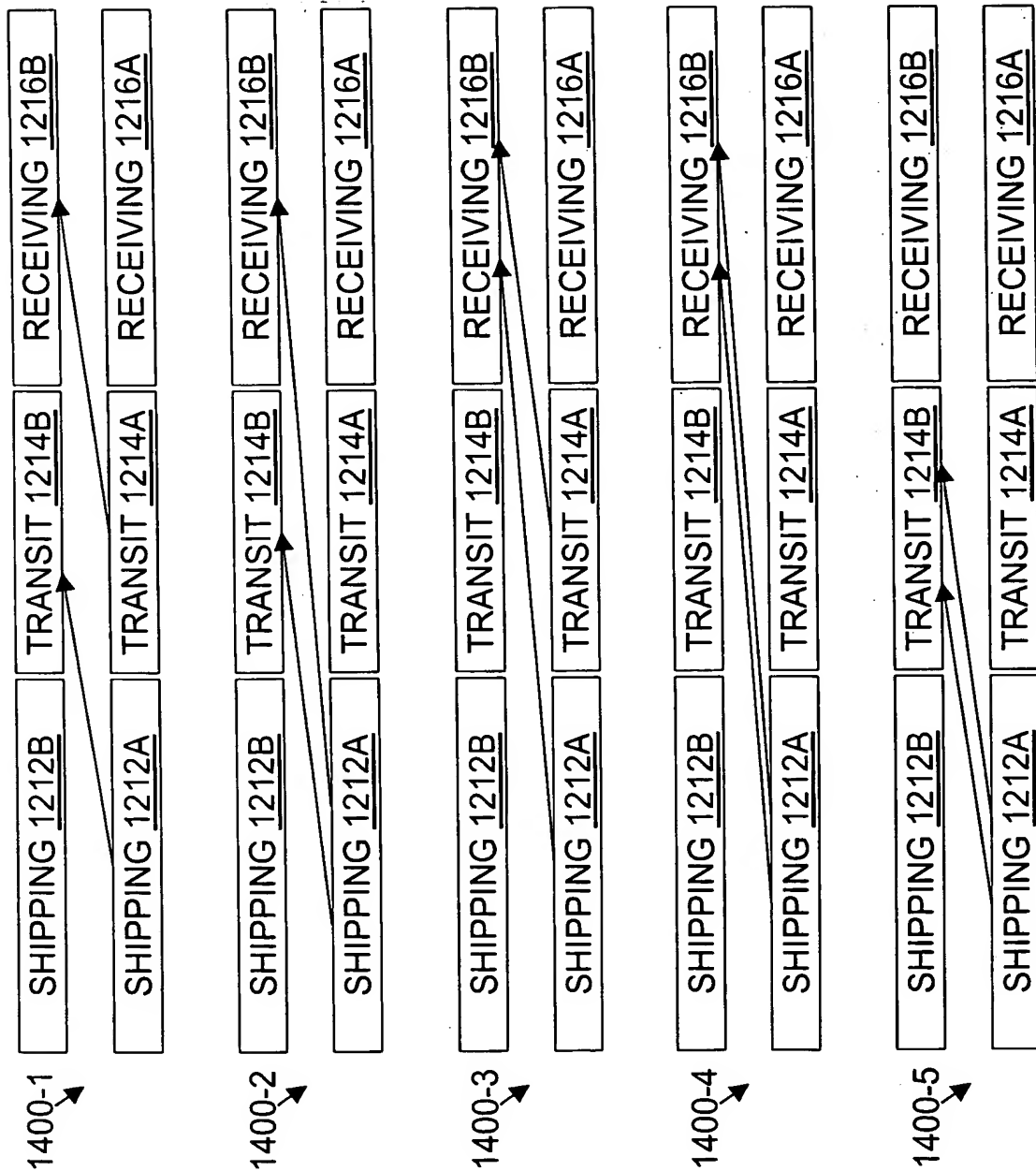


FIG. 14

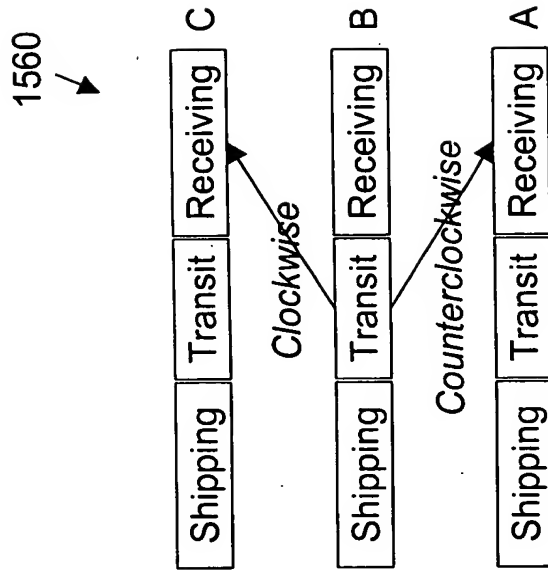
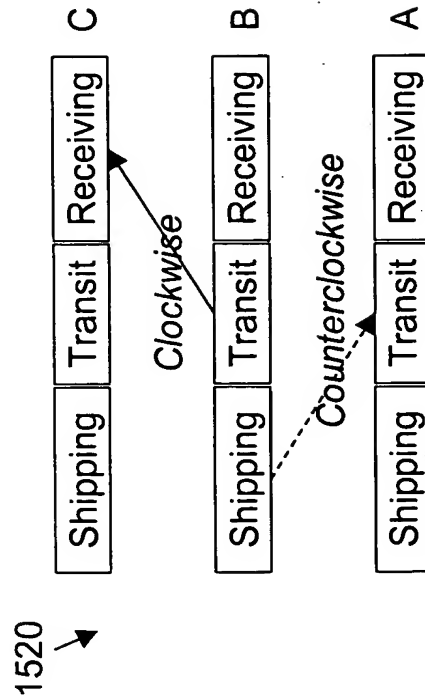
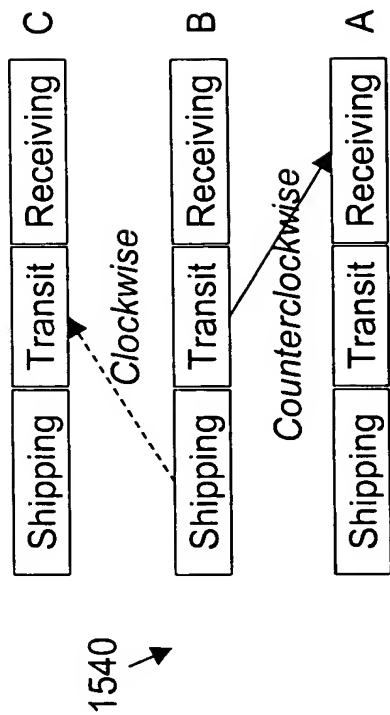


FIG. 15

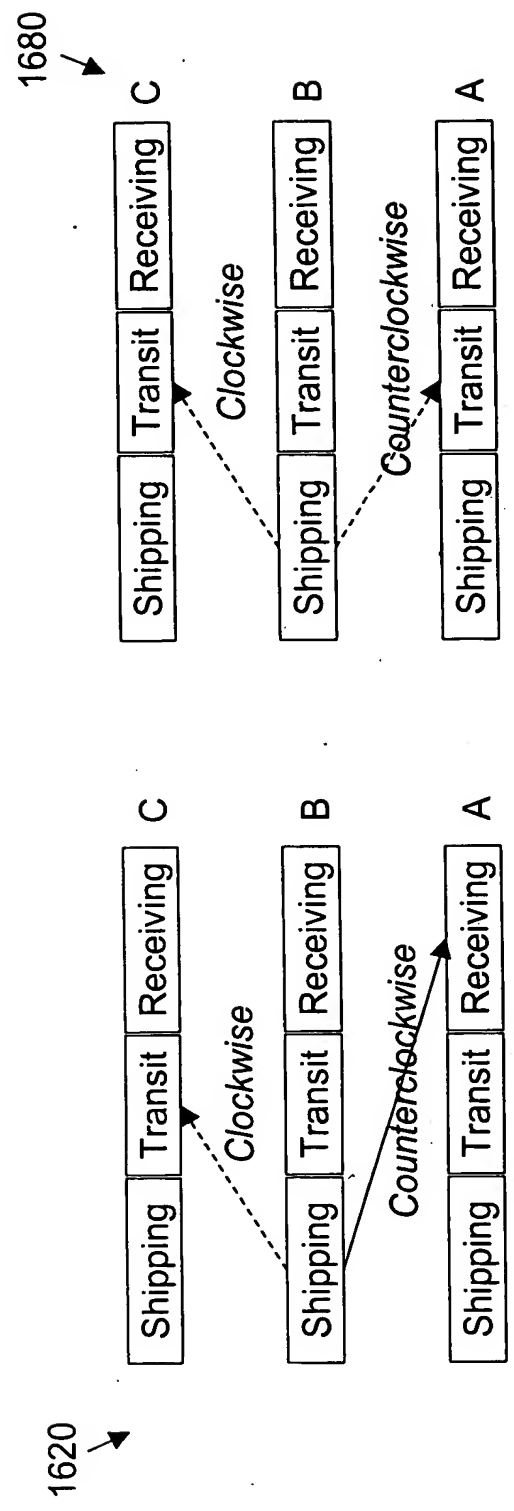
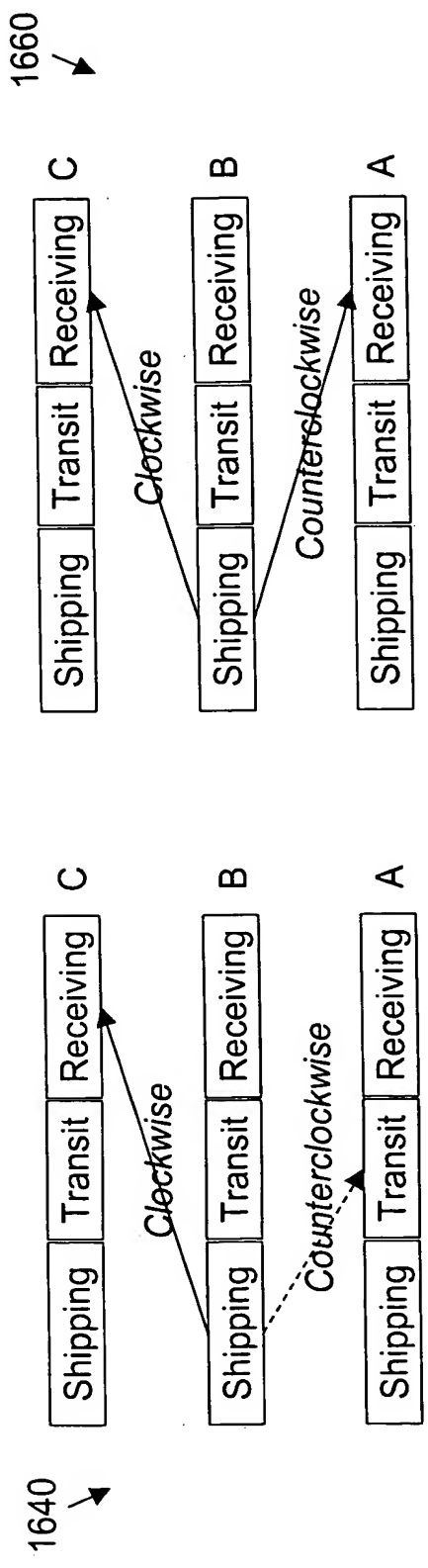


FIG. 16

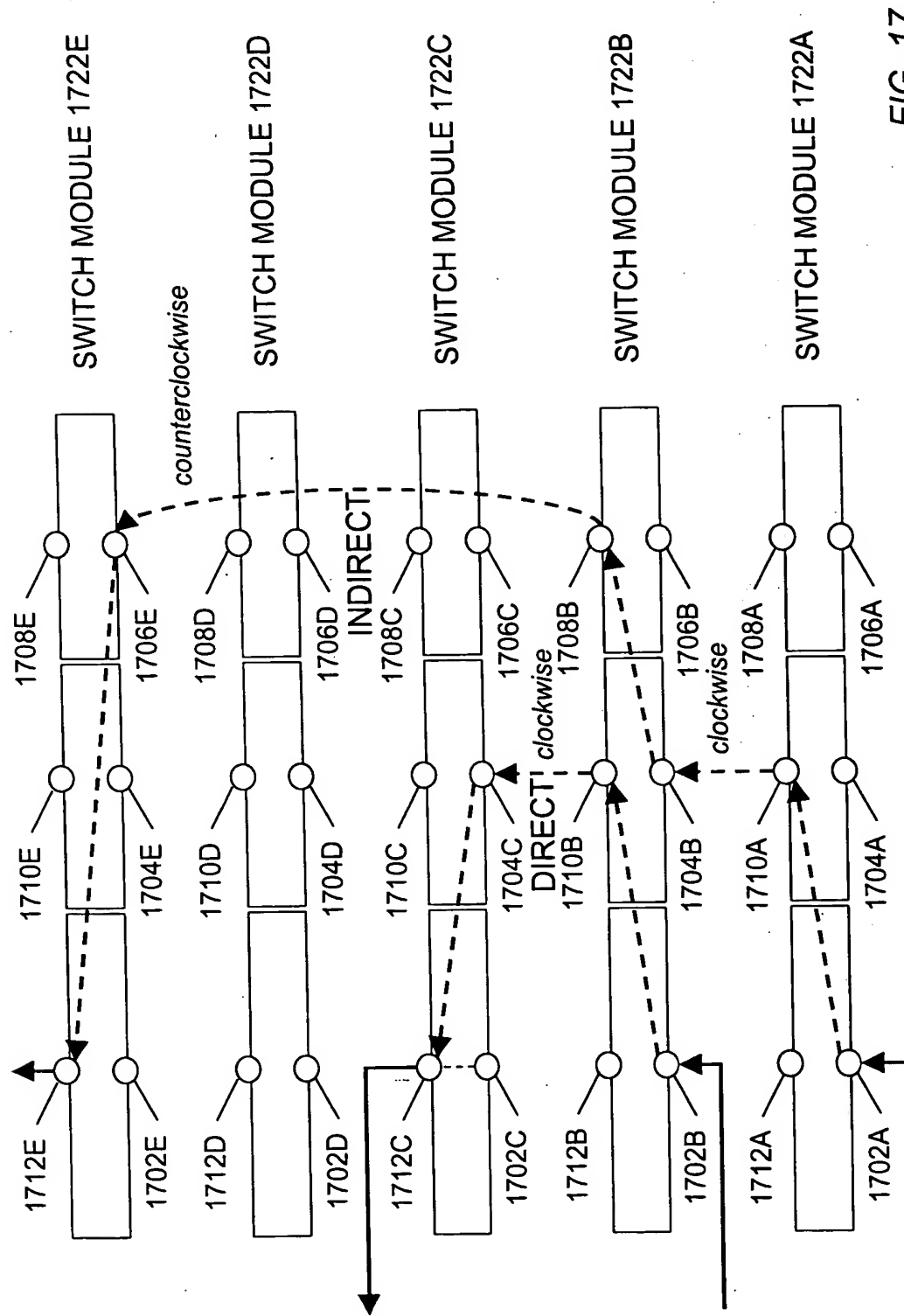


FIG. 17

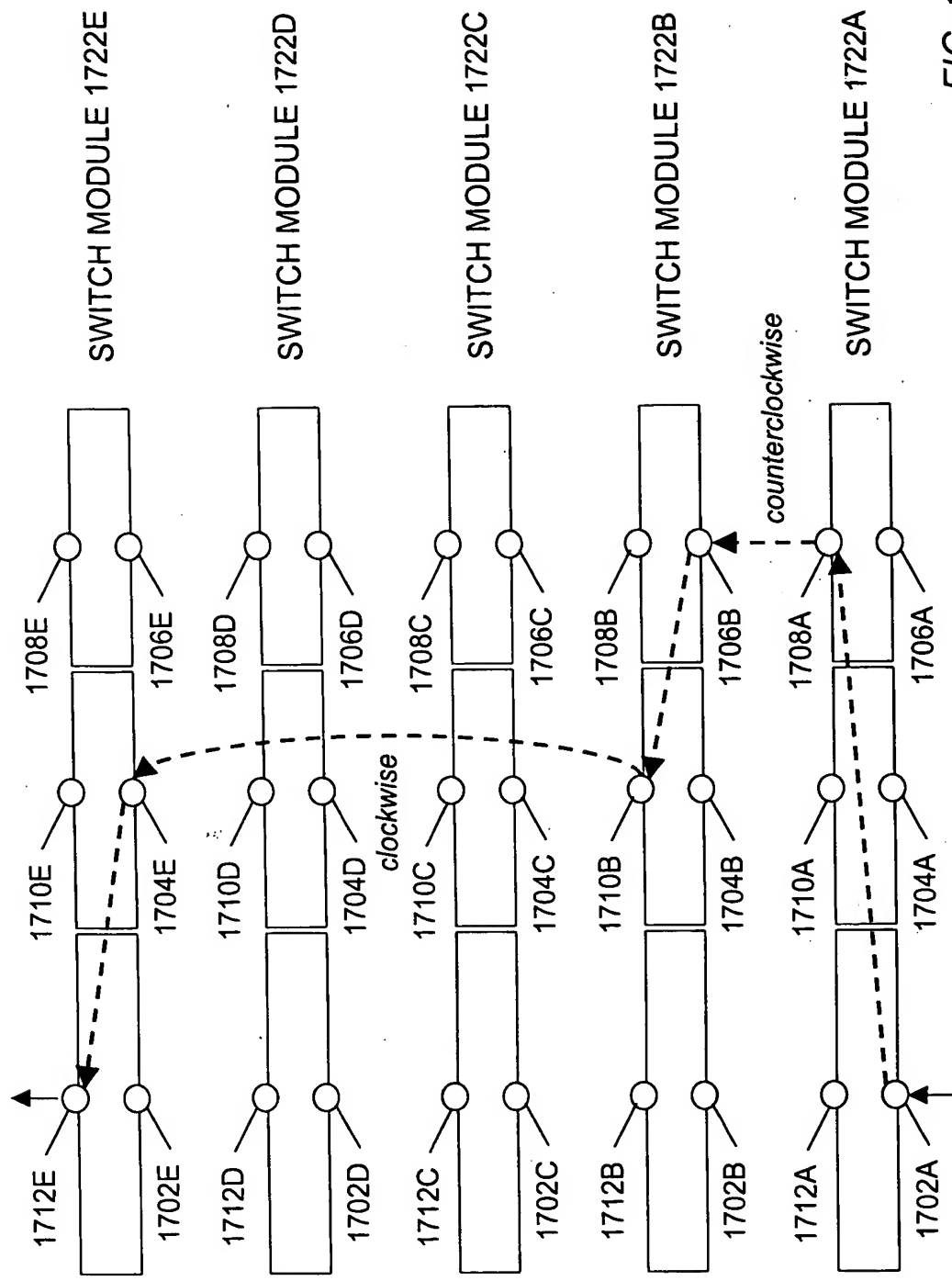


FIG. 18

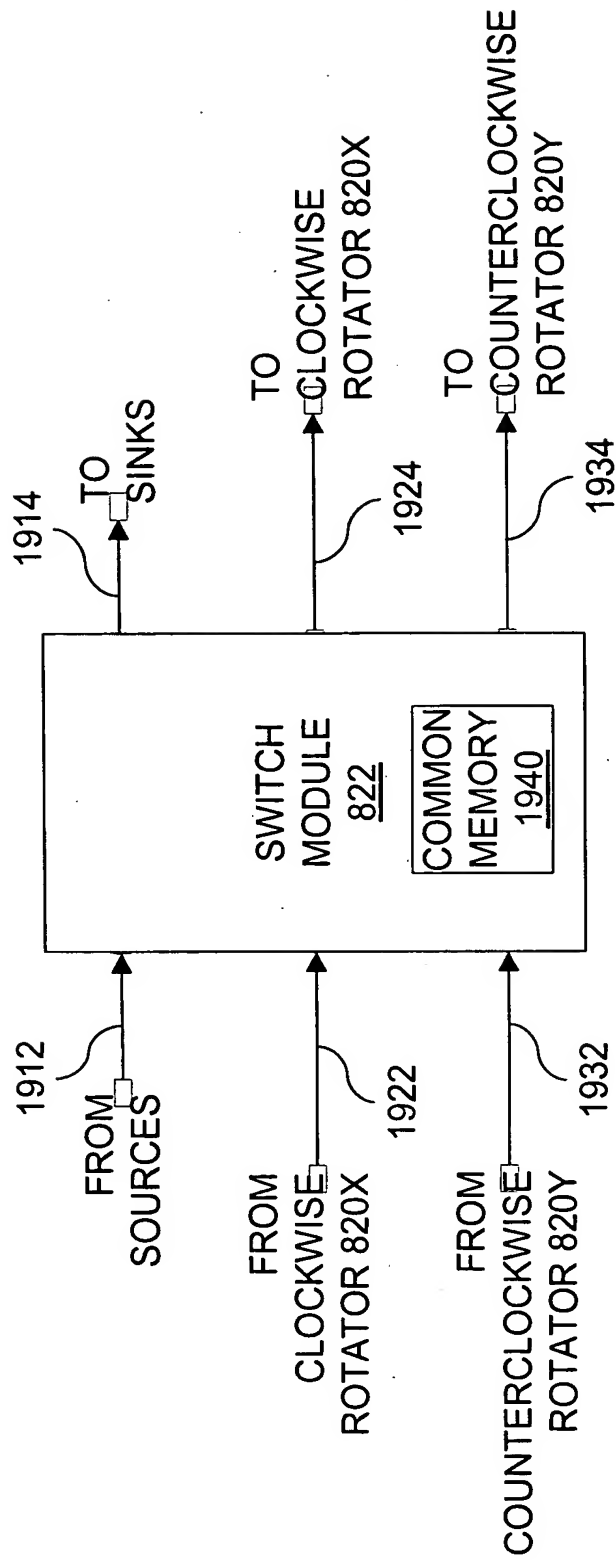


FIG. 19

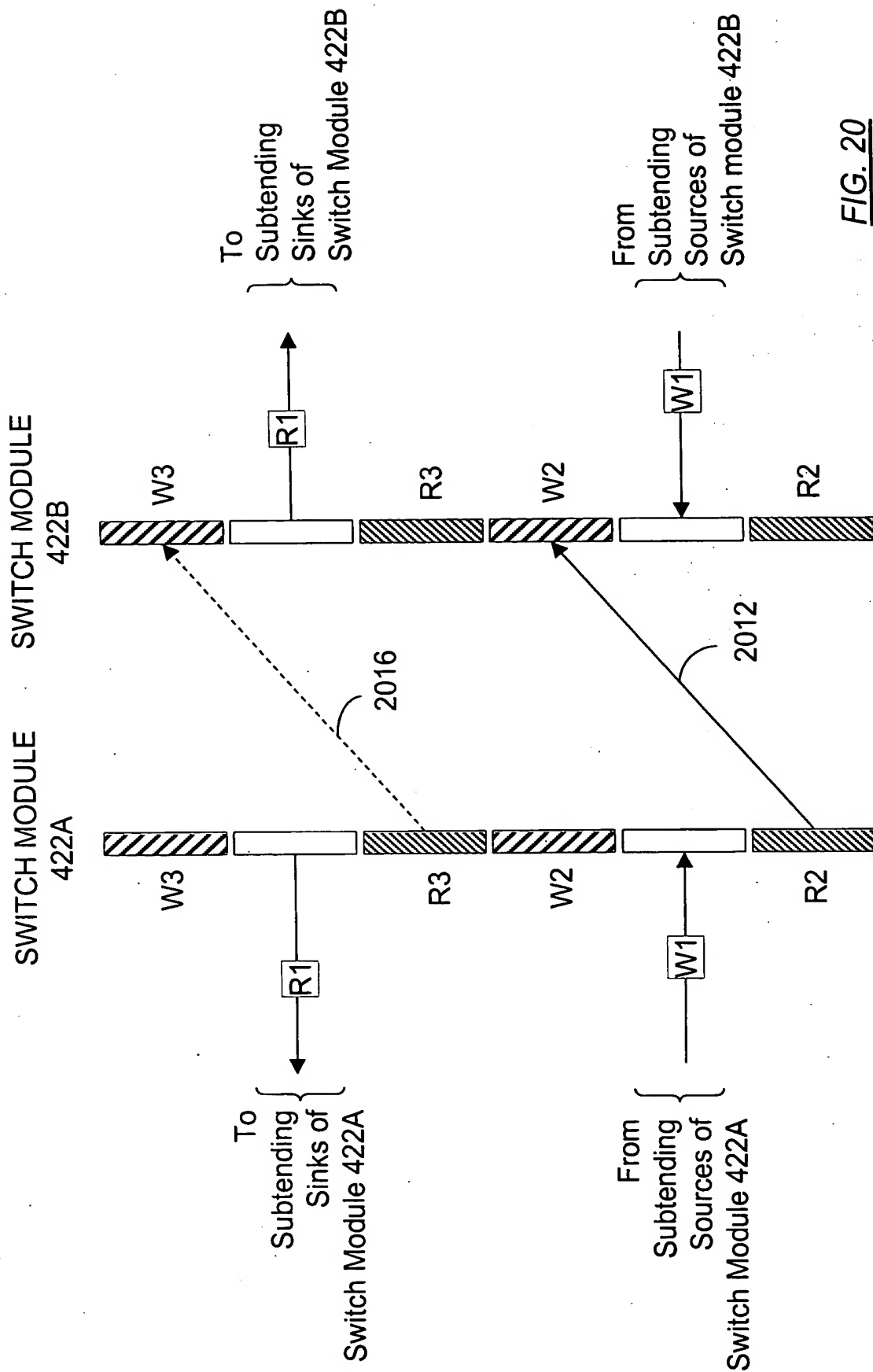


FIG. 20

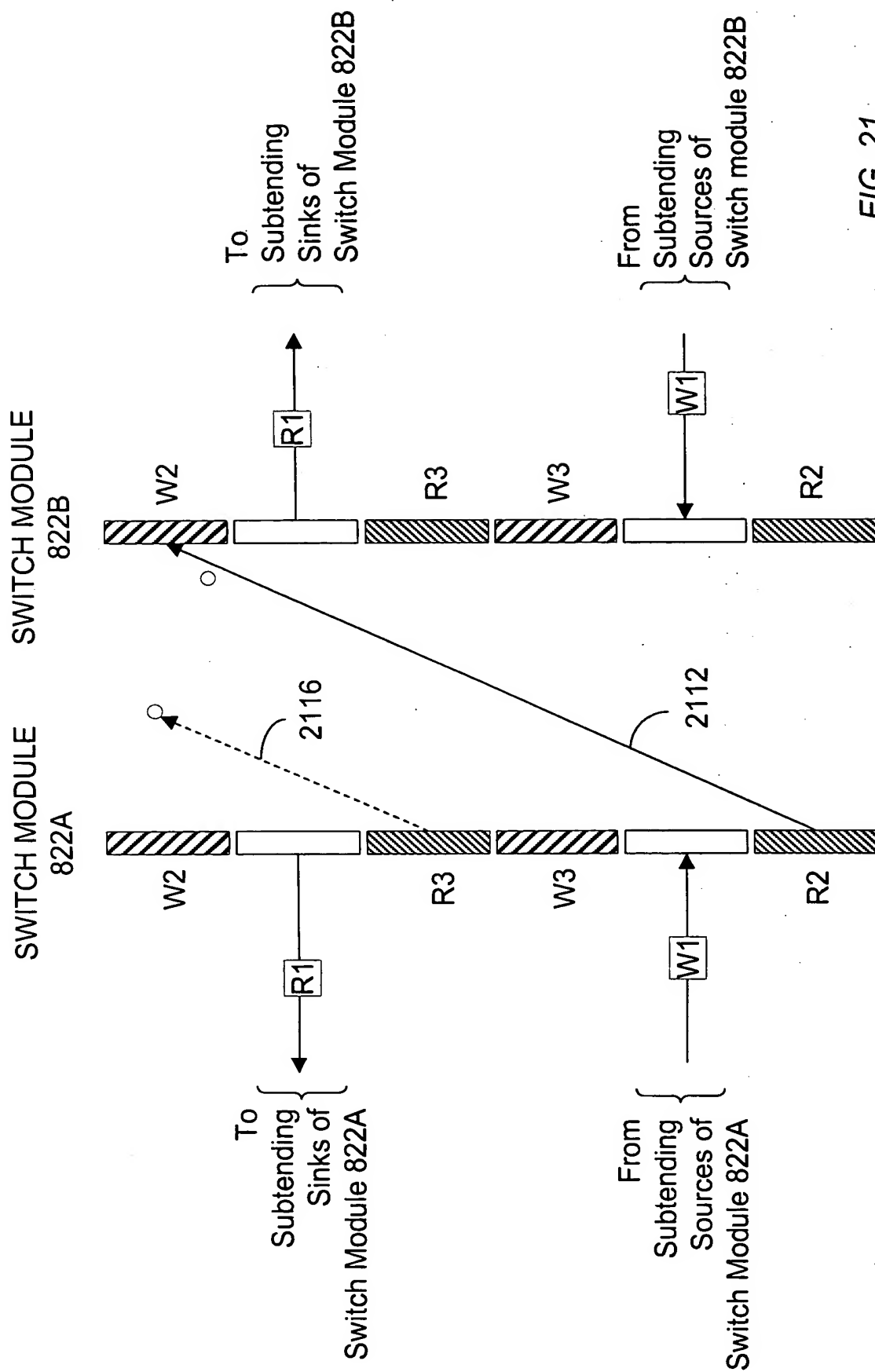
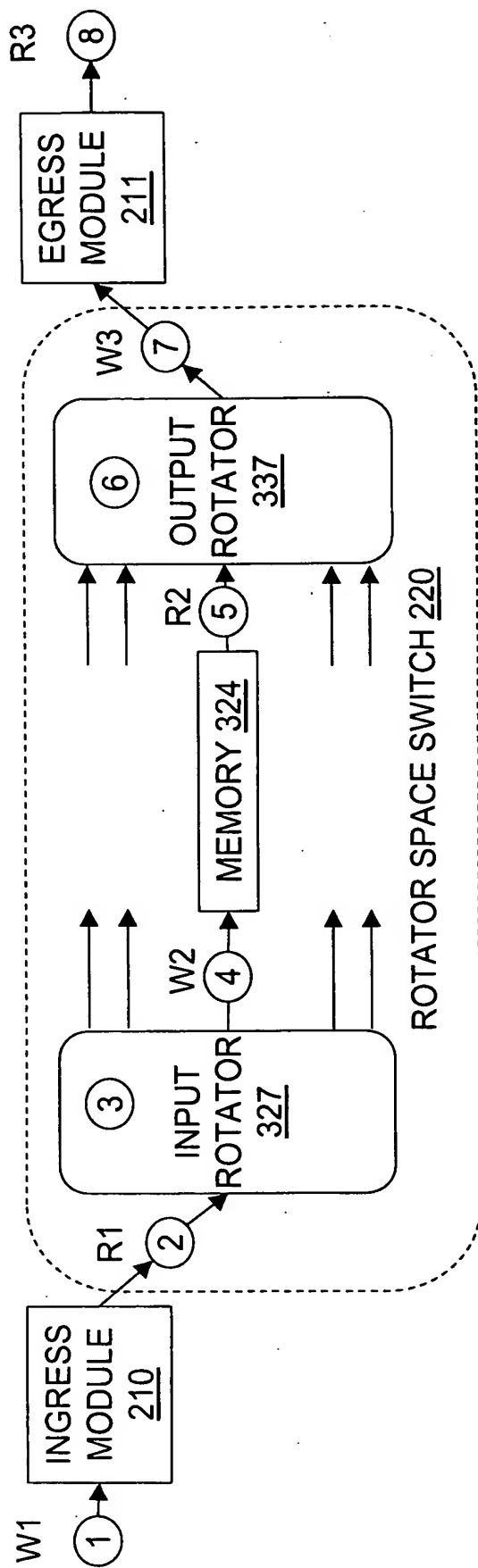


FIG. 21



PRIOR ART

FIG. 22

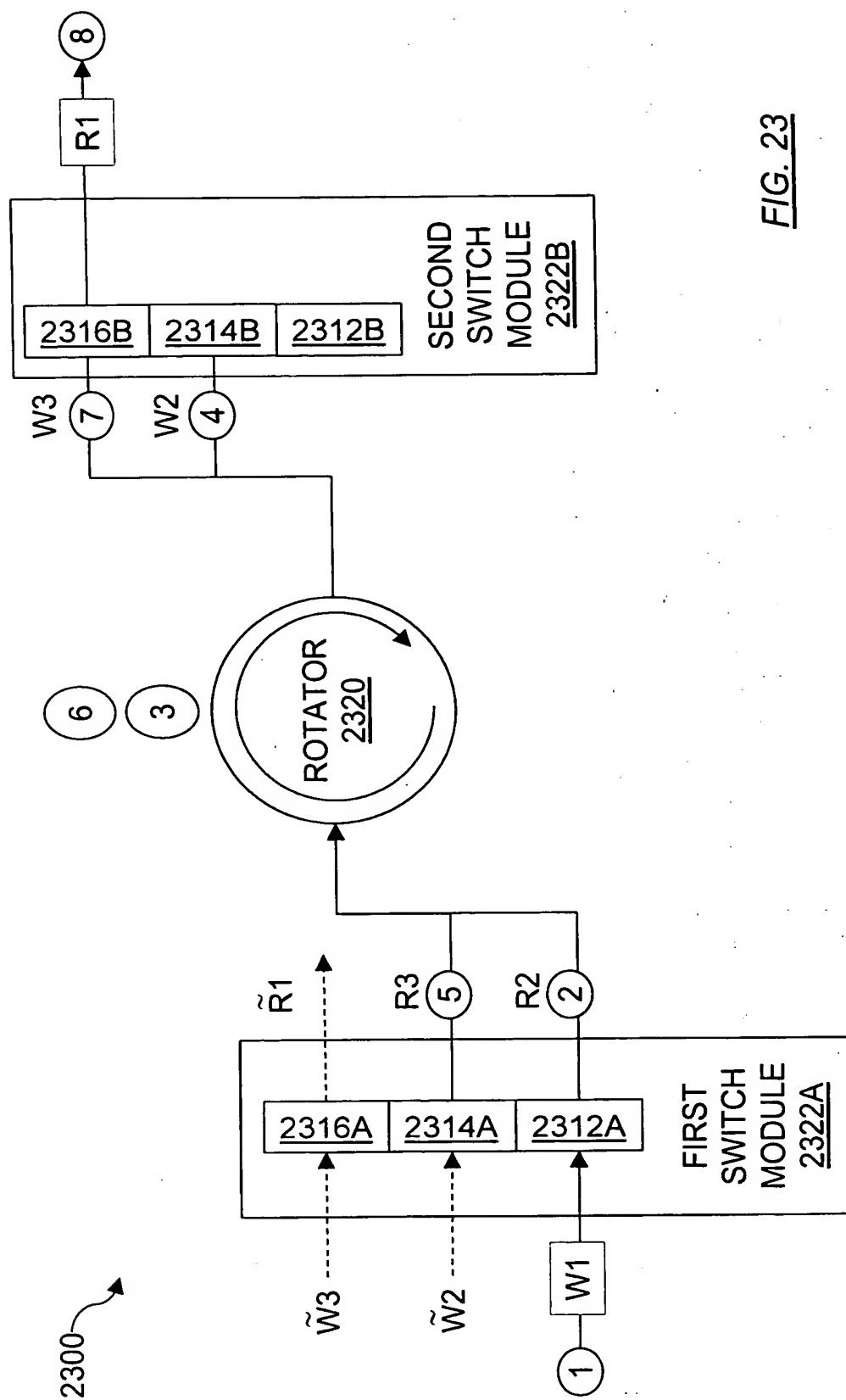


FIG. 23

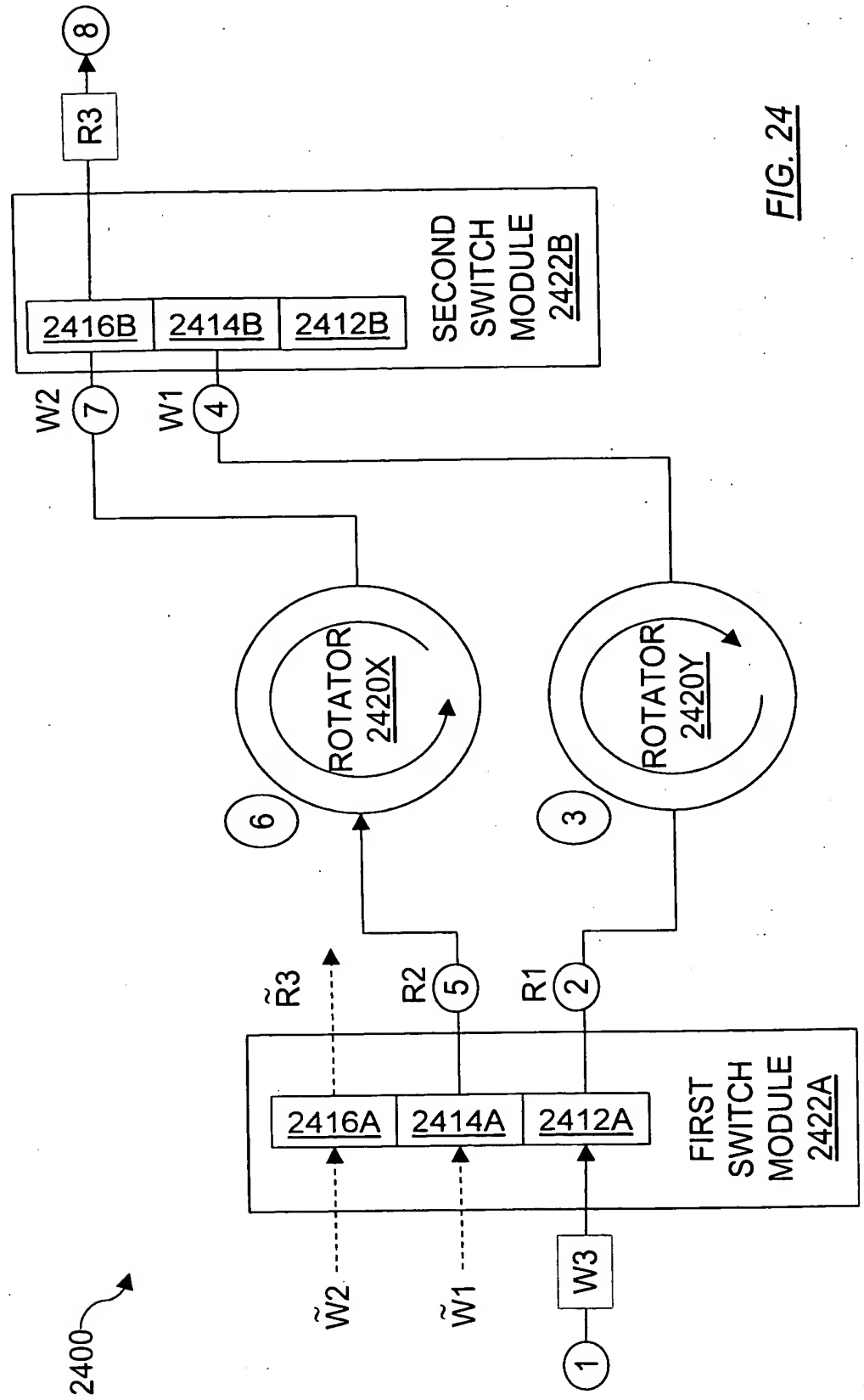


FIG. 24

PHASE-1 554

2500

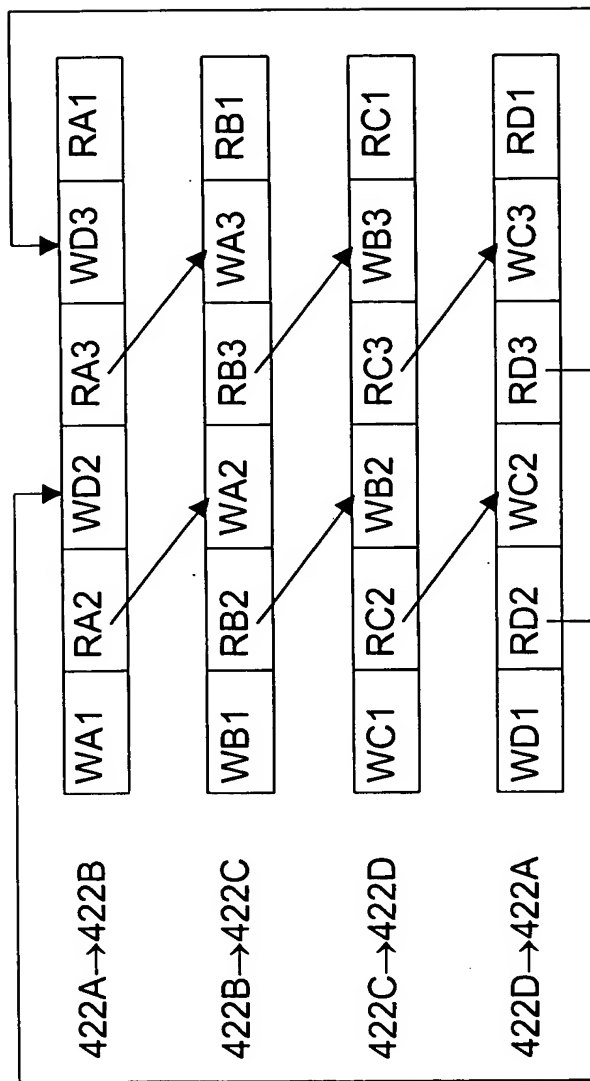


FIG. 25

PHASE-1 554

2600

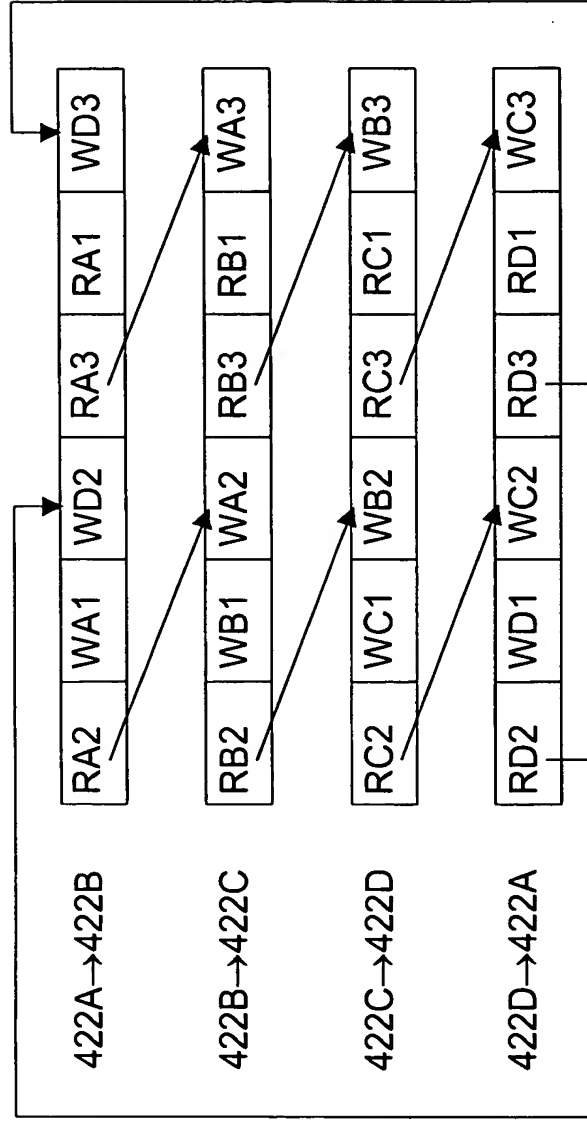


FIG. 26

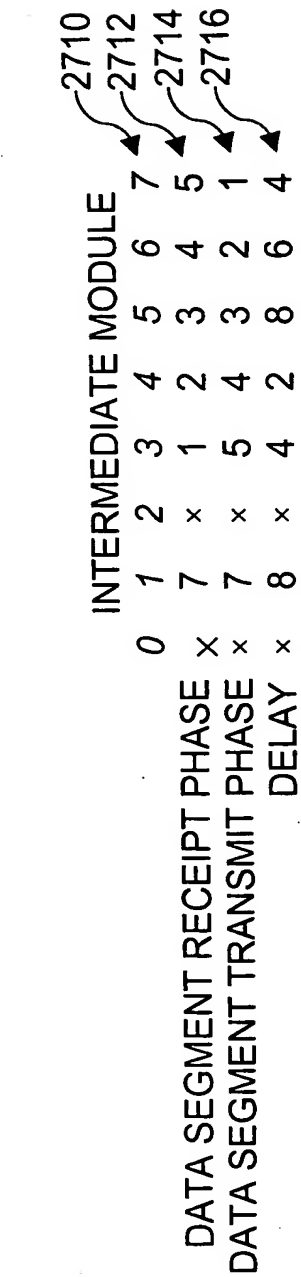
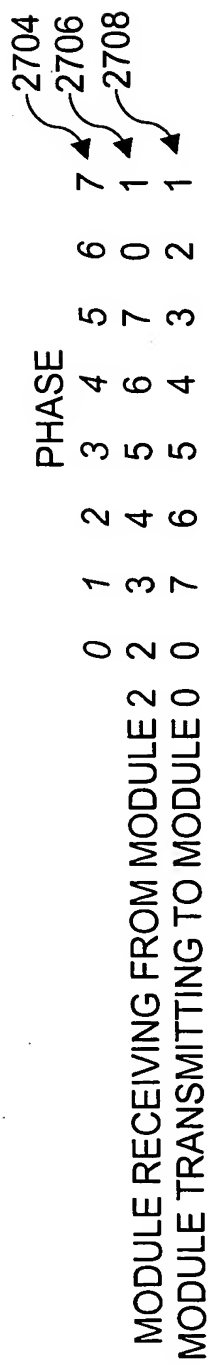


FIG. 27

Absolute time
2812

Cyclic time $\tau=0$ 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
2814 $t=0$ 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7

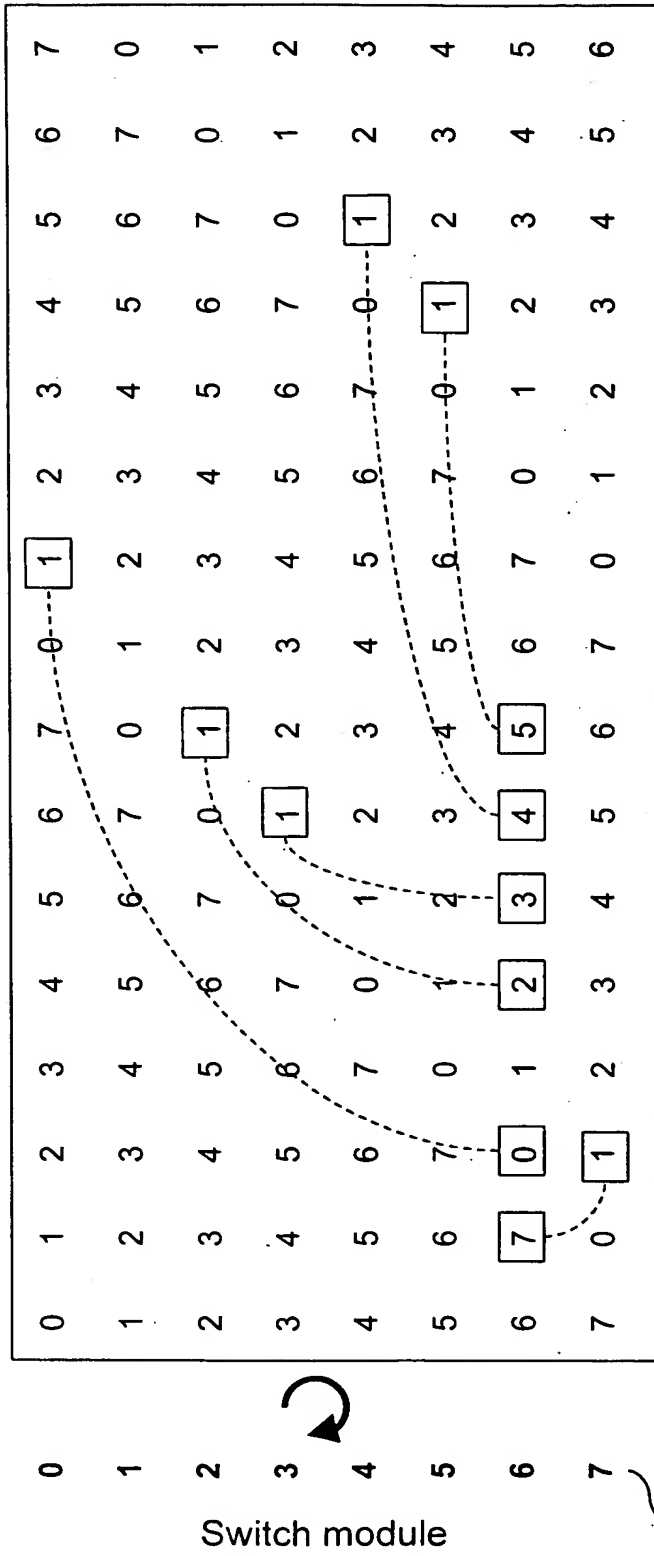


FIG. 28

Cyclic time $\tau = 0$ 1 2 3 4 5 6 7 8 9 10 11 12 13
 2914 $t = 0$ 1 2 3 4 5 6 0 1 2 3 4 5 6

[illegible]

FIG. 29

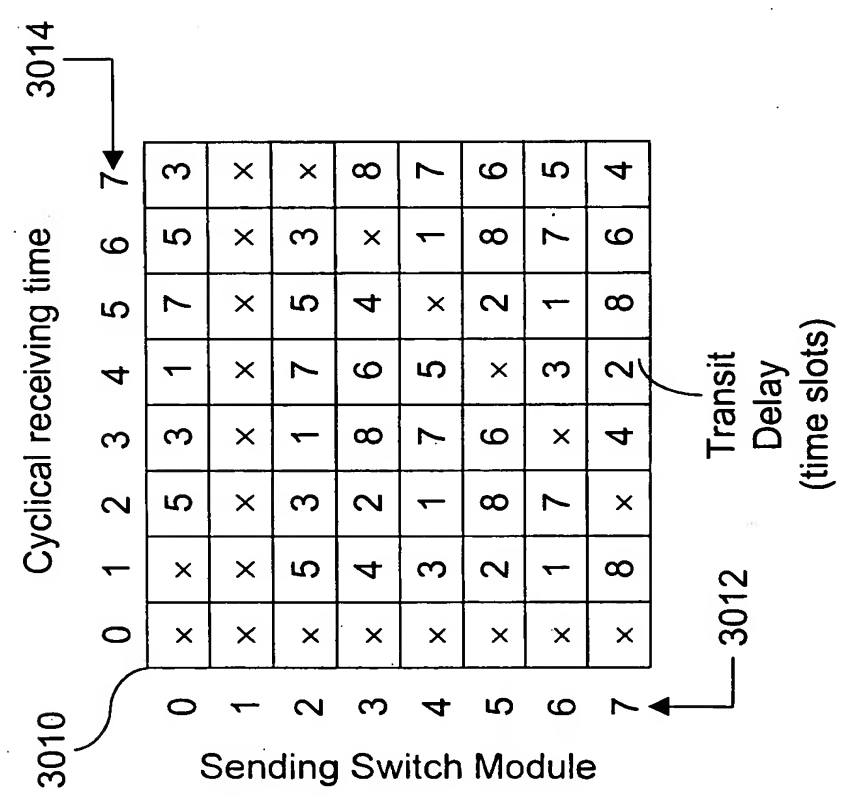
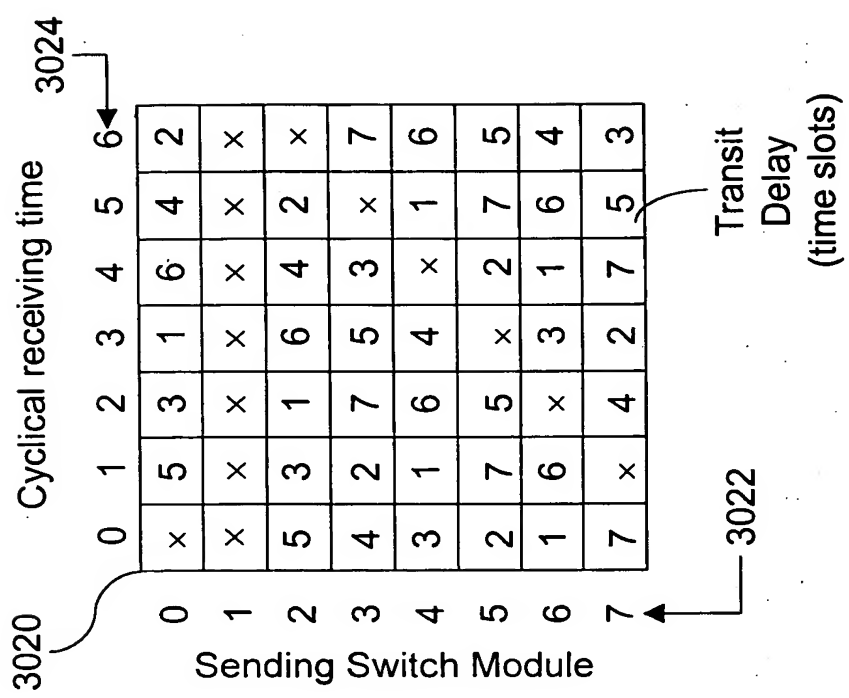


FIG. 30

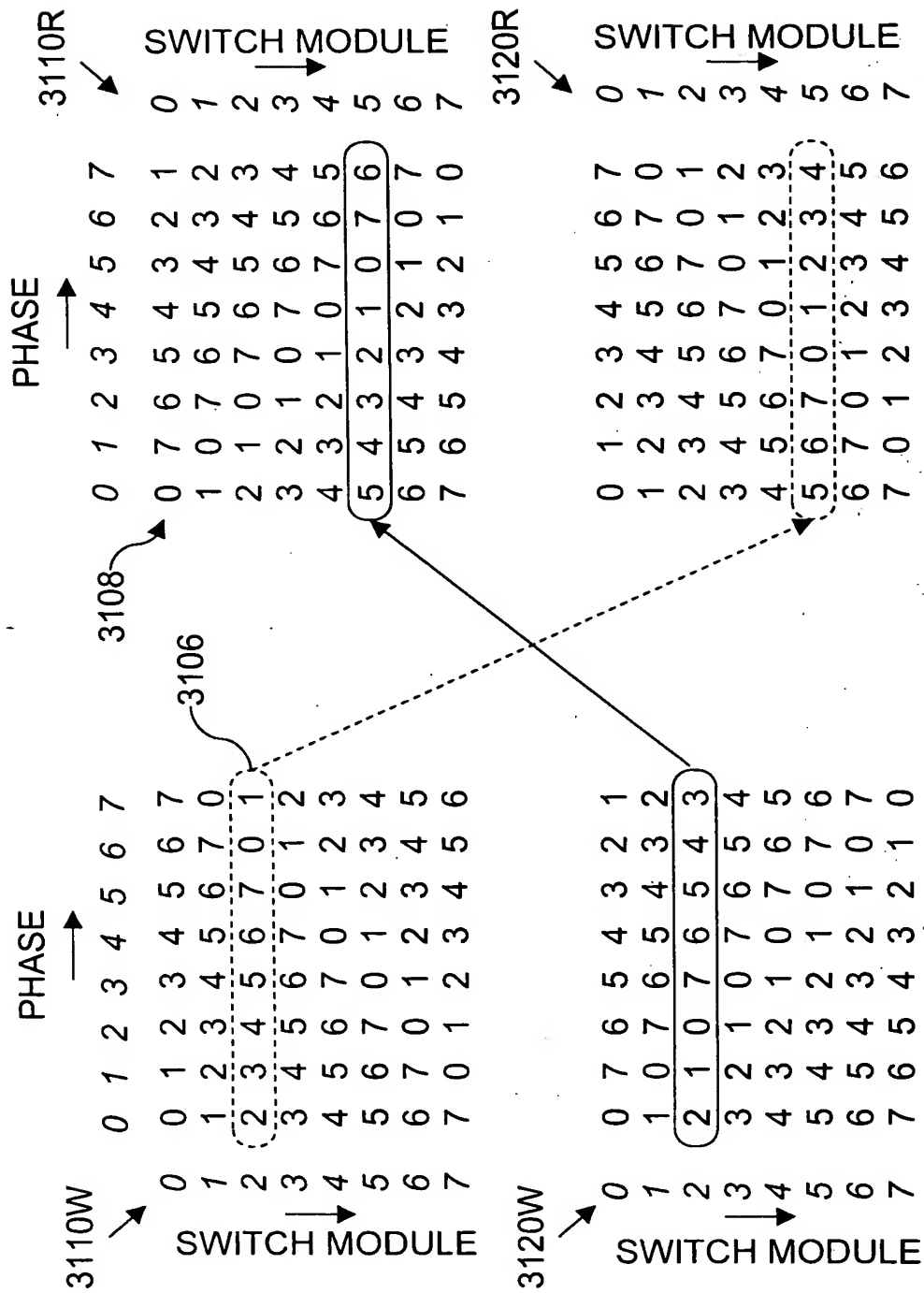


FIG. 31

3202

INTERMEDIATE SWITCH MODULE

	0	1	2	3	4	5	6	7	
Data Segment Receipt Phase (First rotator)	6	7	0	1	2	3	4	5	3210F
Data Segment Transmission Phase (First rotator)	5	4	3	2	1	0	7	6	3212F
Data Segment Receipt Phase (Second rotator)	2	1	0	7	6	5	4	3	3210S
Data Segment Transmission Phase (Second rotator)	3	4	5	6	7	0	1	2	3212S
<hr/>									
Transit Delay (First rotator then Second rotator)	5	5	X	5	5	X	5	5	3214FS
Transit Delay (Second rotator then First rotator)	3	3	X	3	3	X	3	3	3214SF

FIG. 32

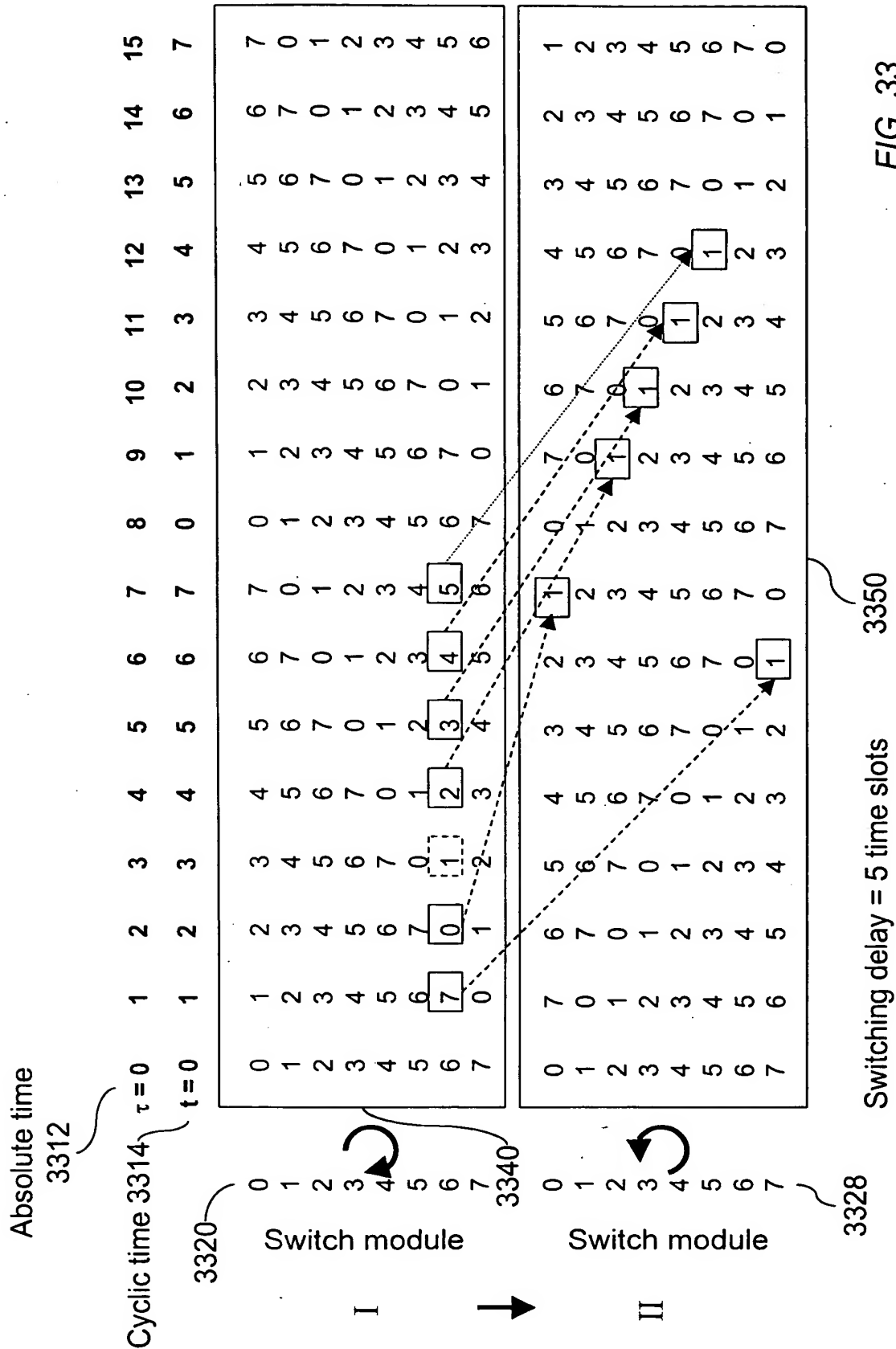


FIG. 33

Absolute time
3312

Cyclic time 3314

$\tau = 0$ 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
 $t = 0$ 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7

3320

Switch module

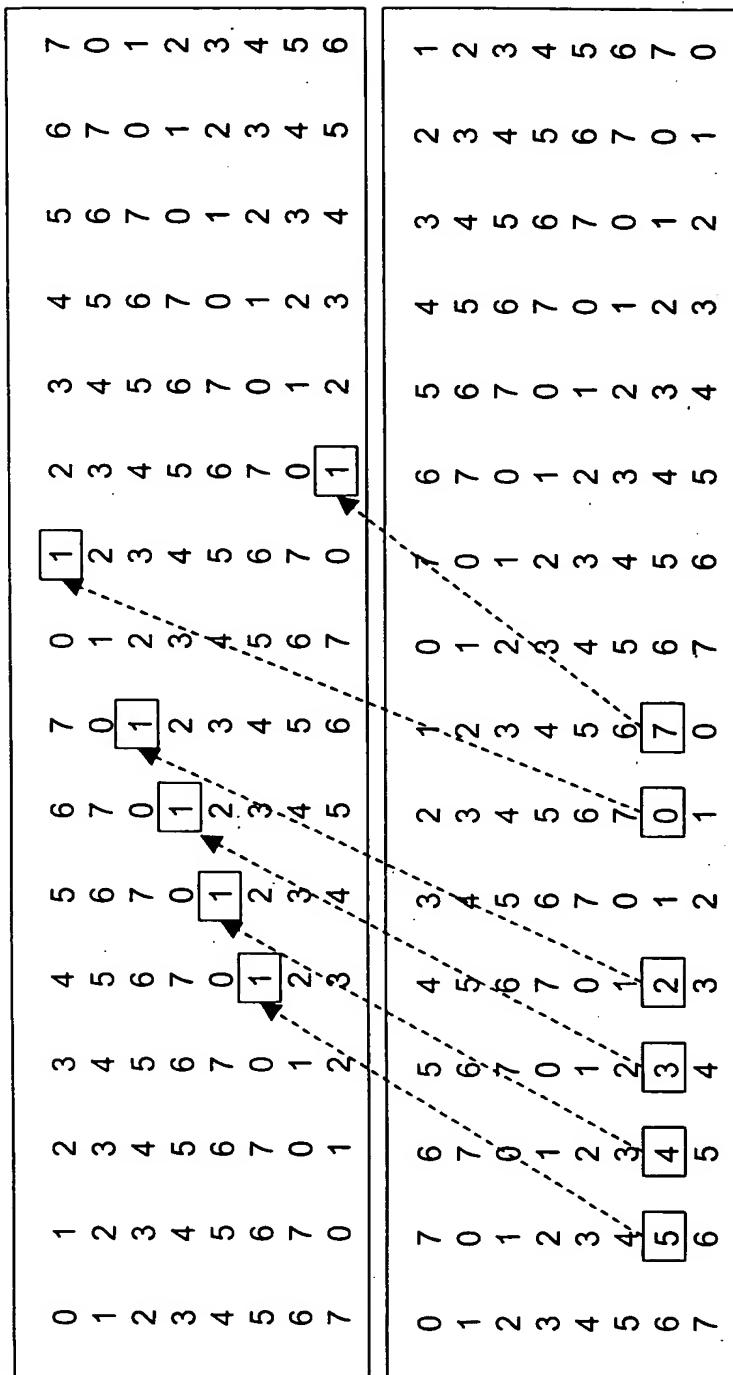
I

3340

Switch module

II

3328



Switching delay = 3 time slots

3350

FIG. 34

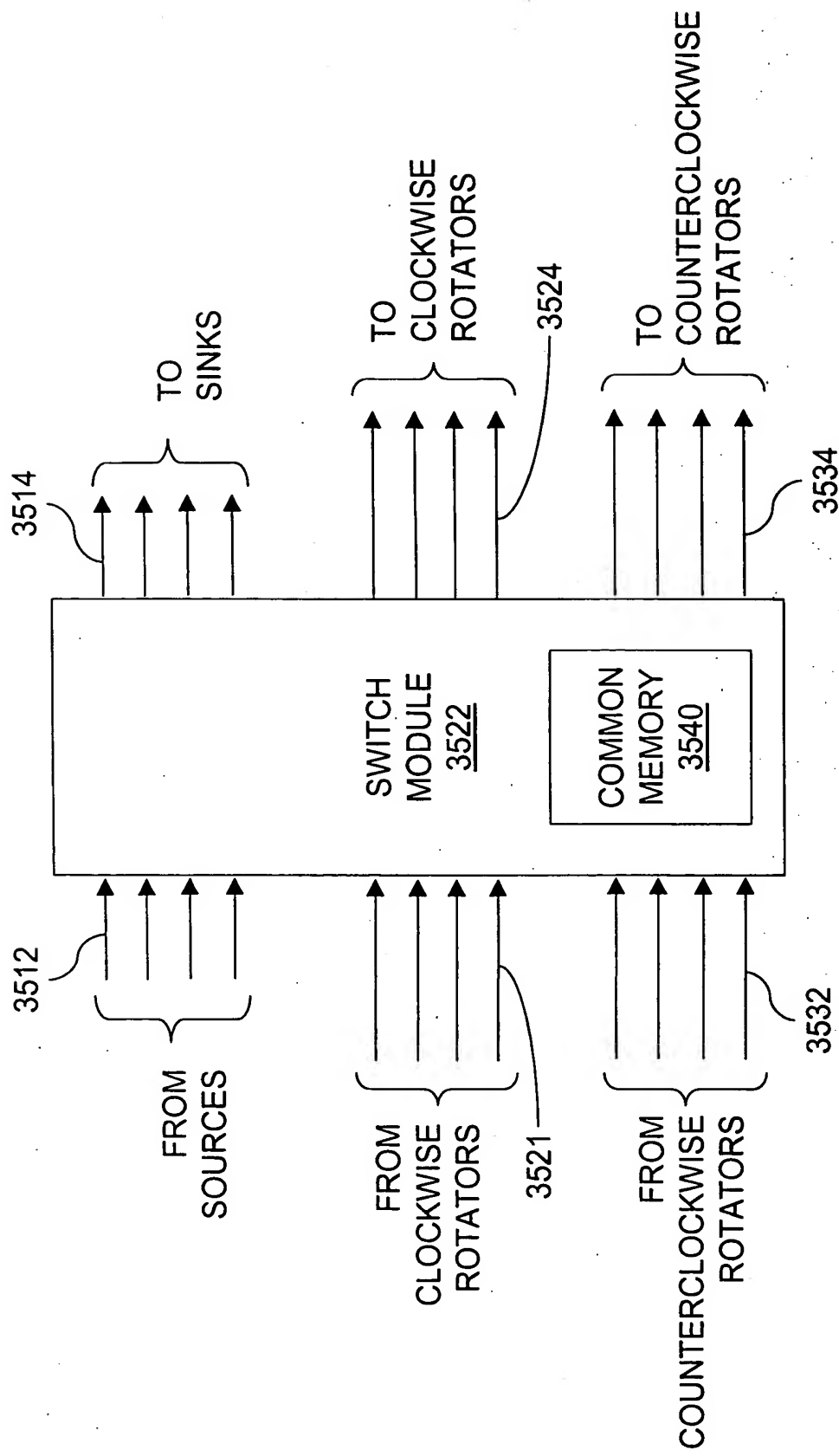


FIG. 35

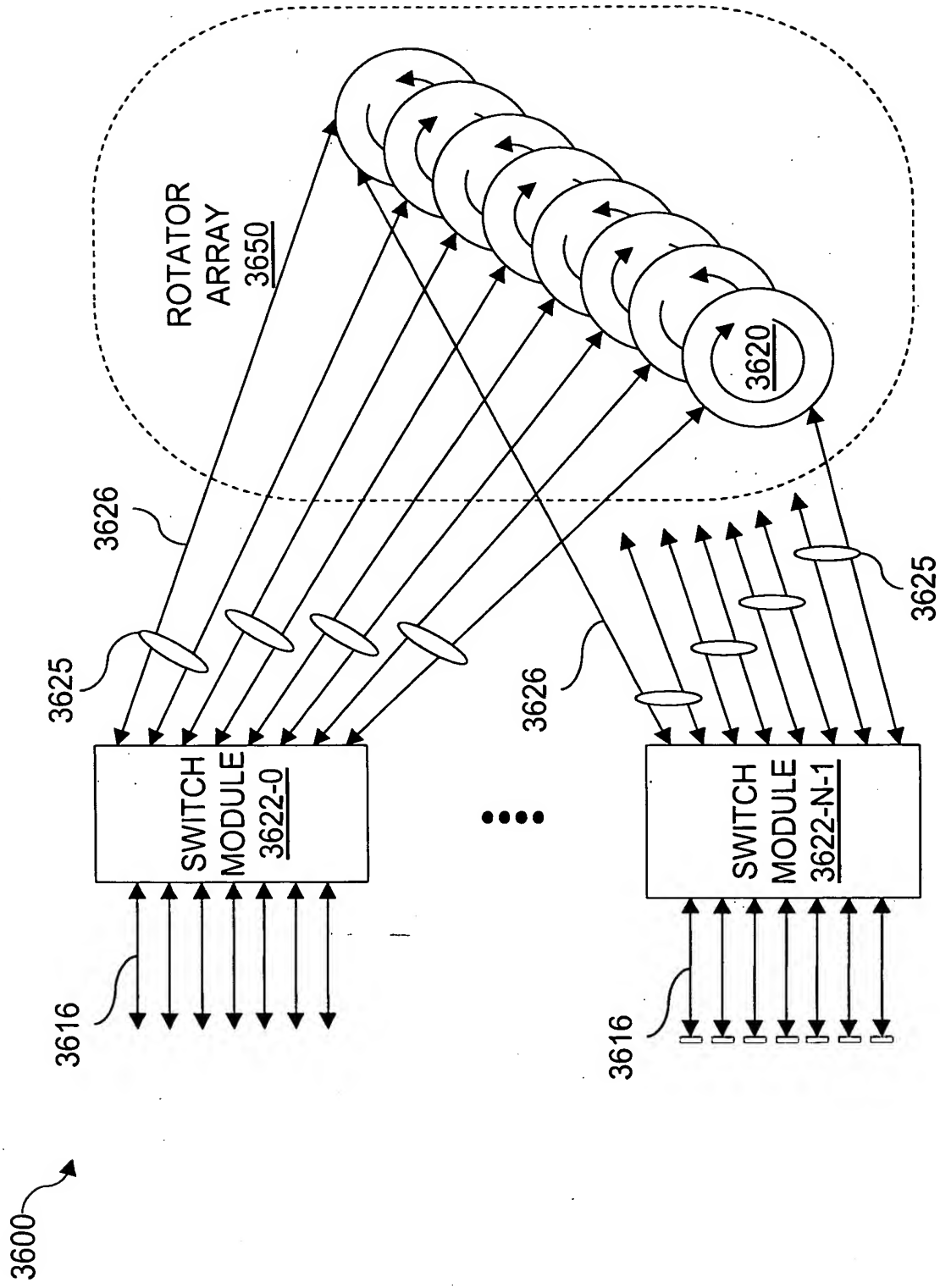


FIG. 36

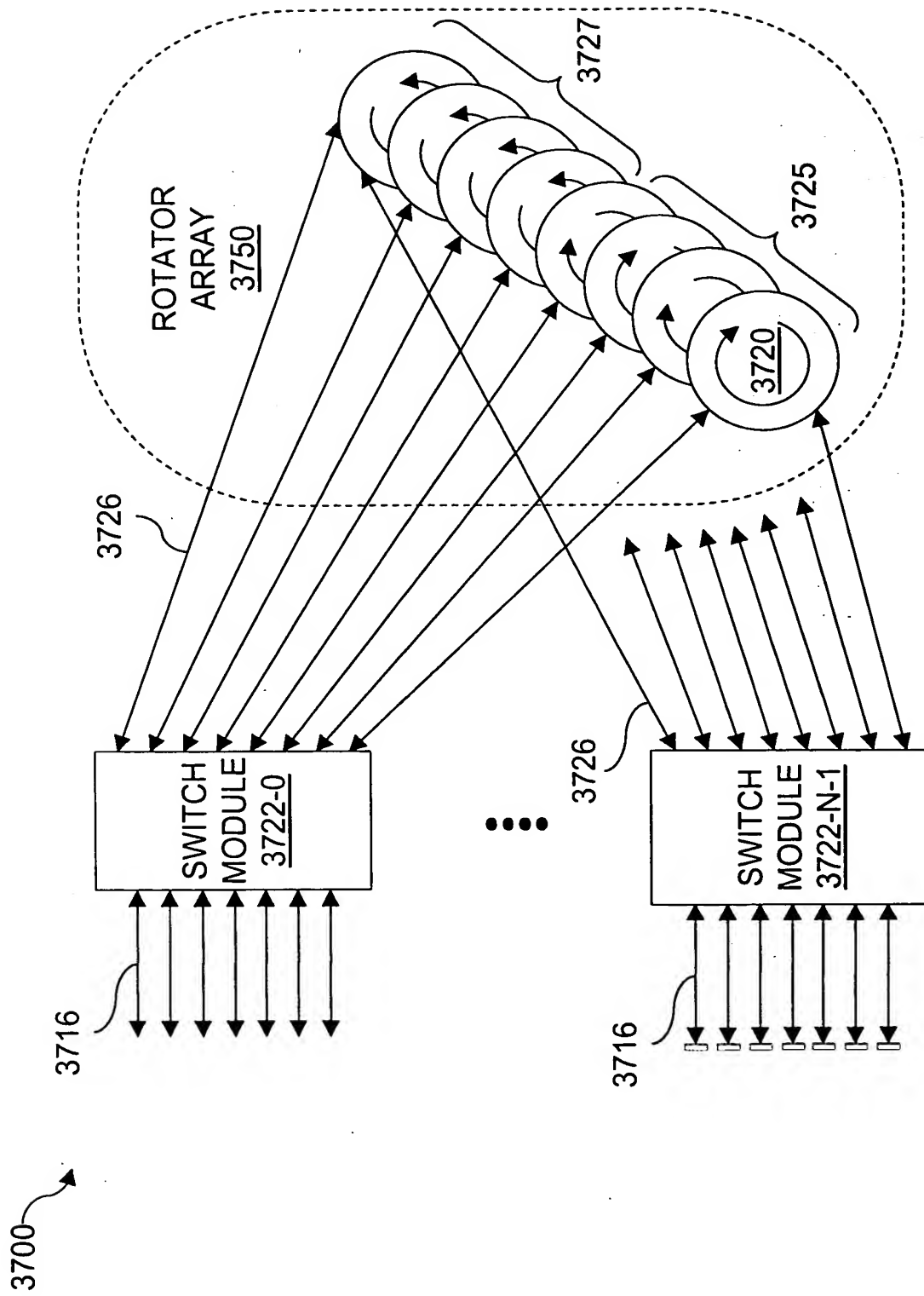


FIG. 37

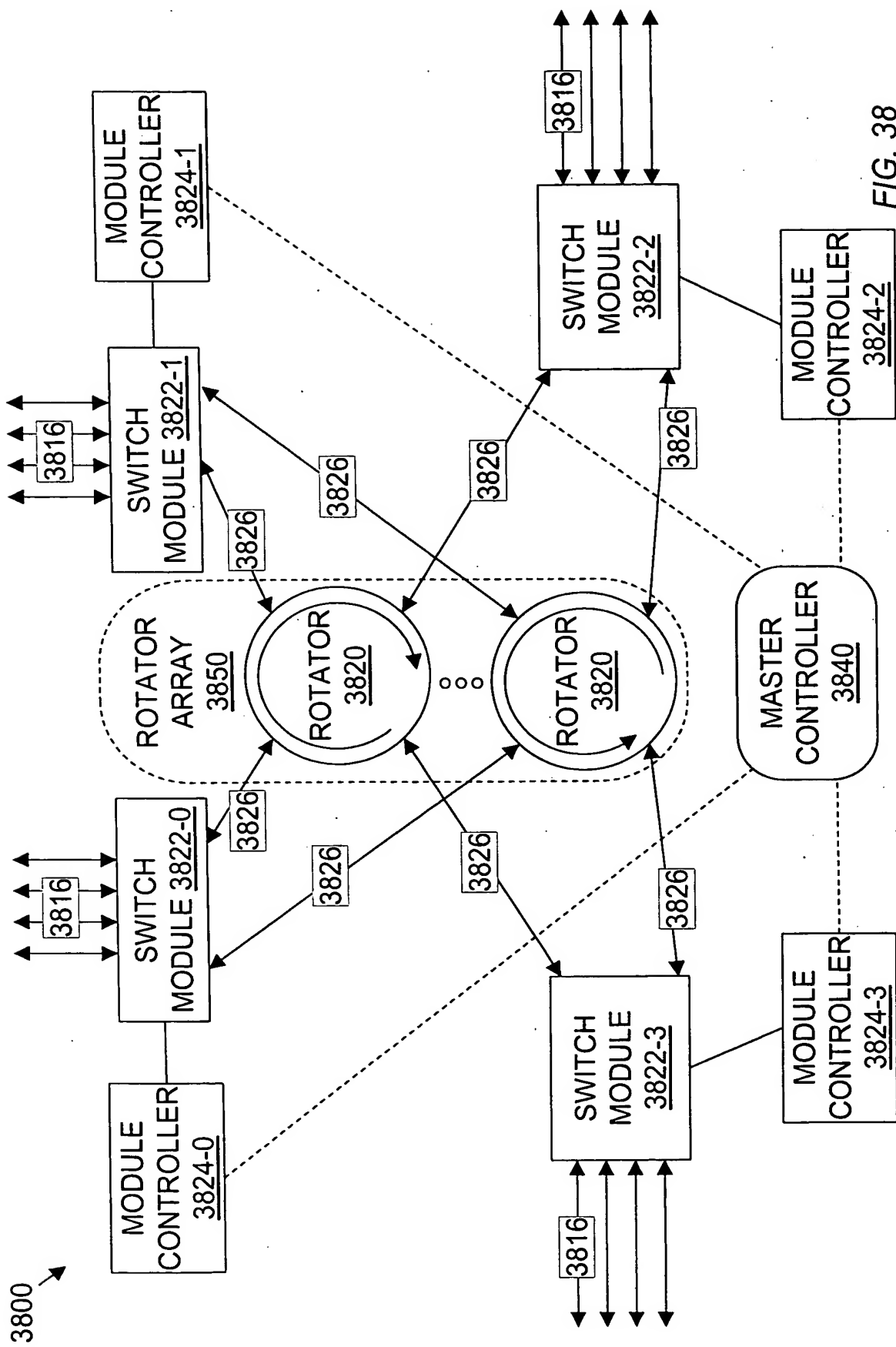


FIG. 38

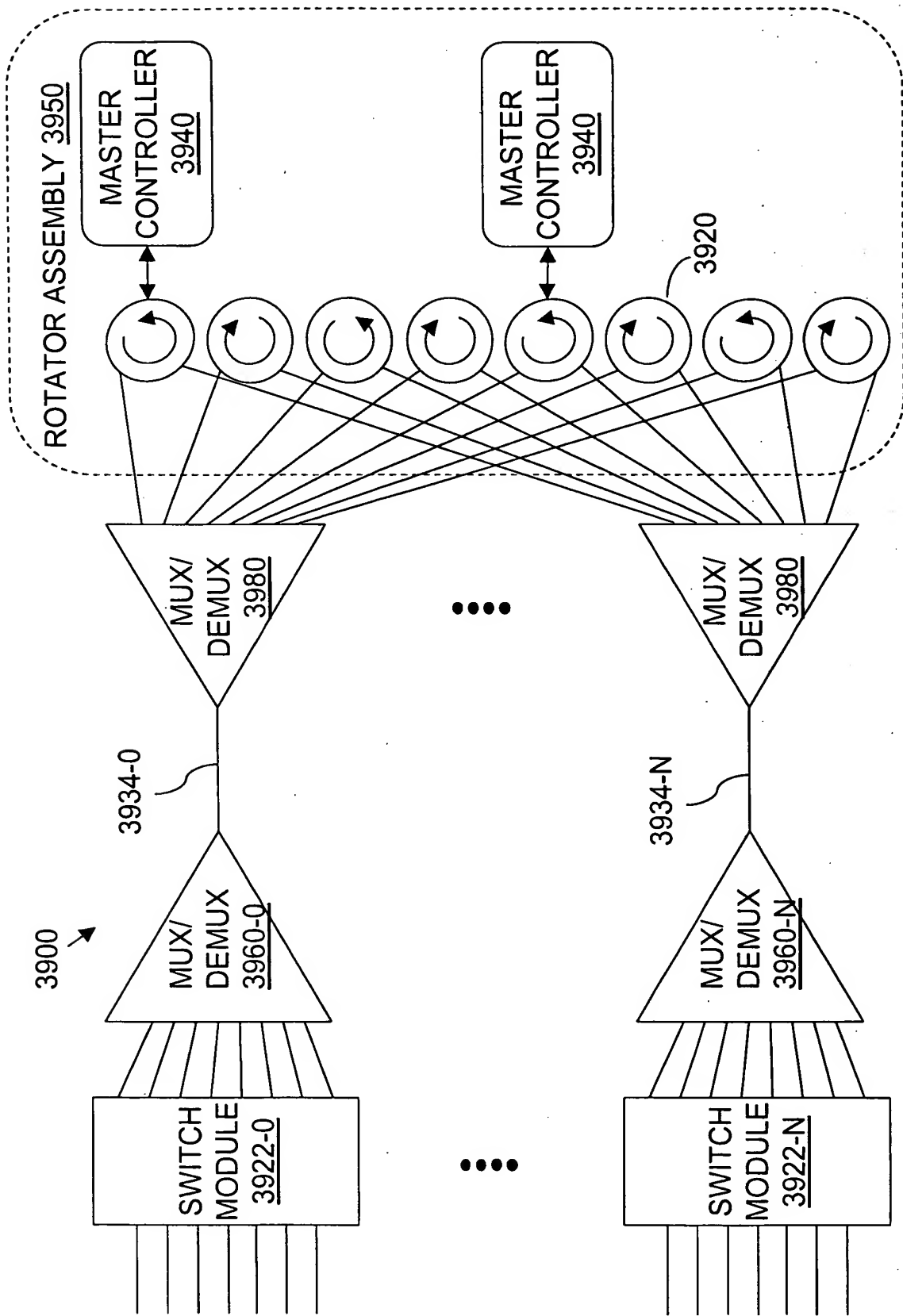


FIG. 39

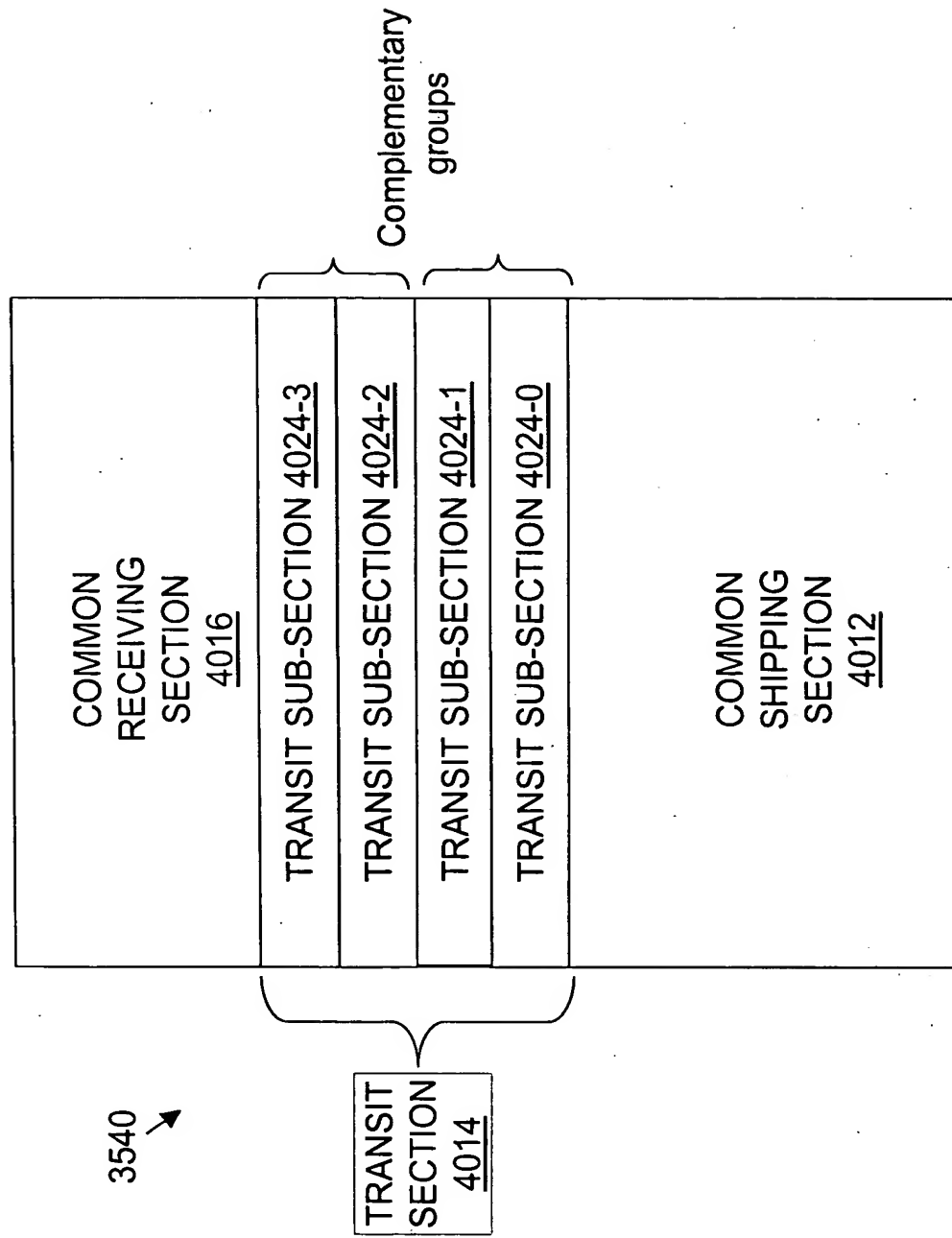


FIG. 40

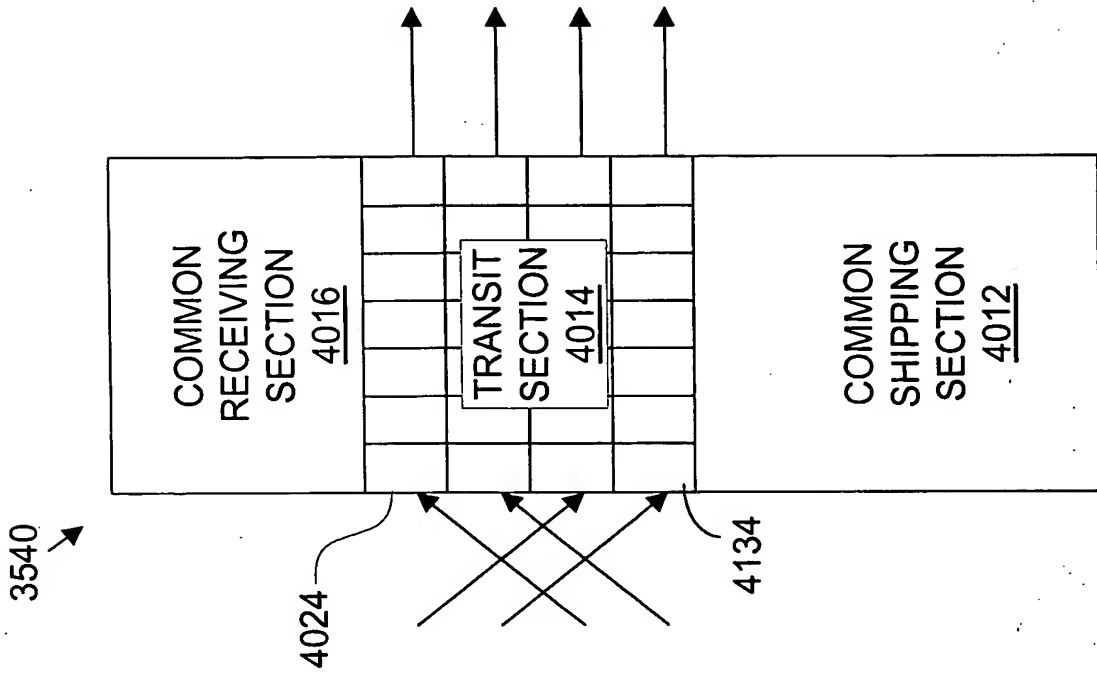


FIG. 41A

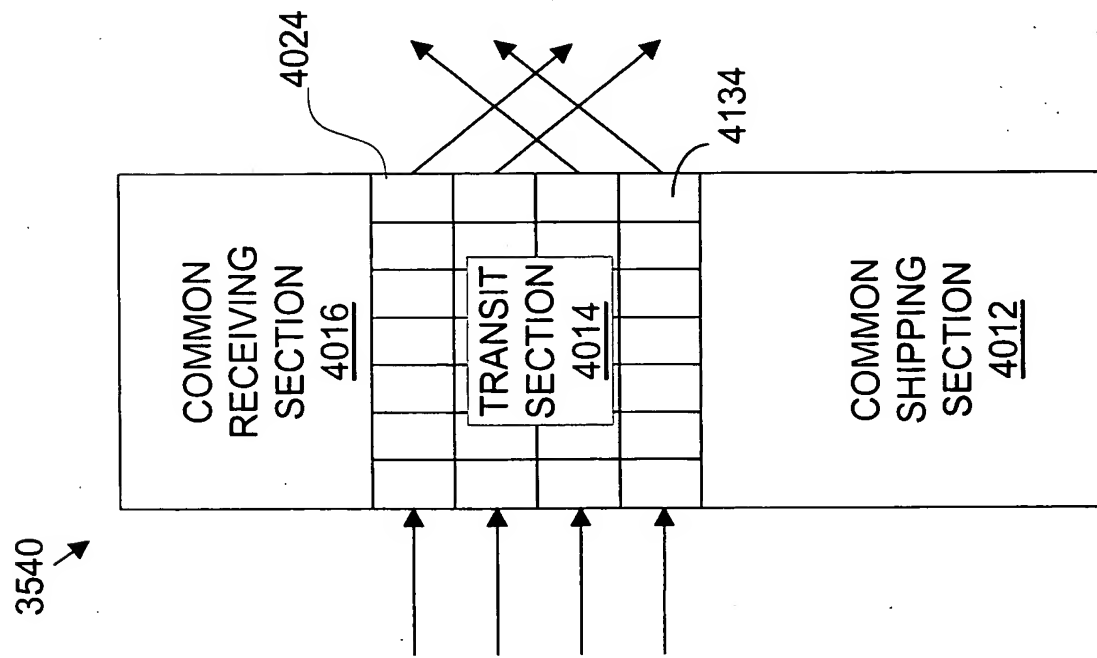


FIG. 41B

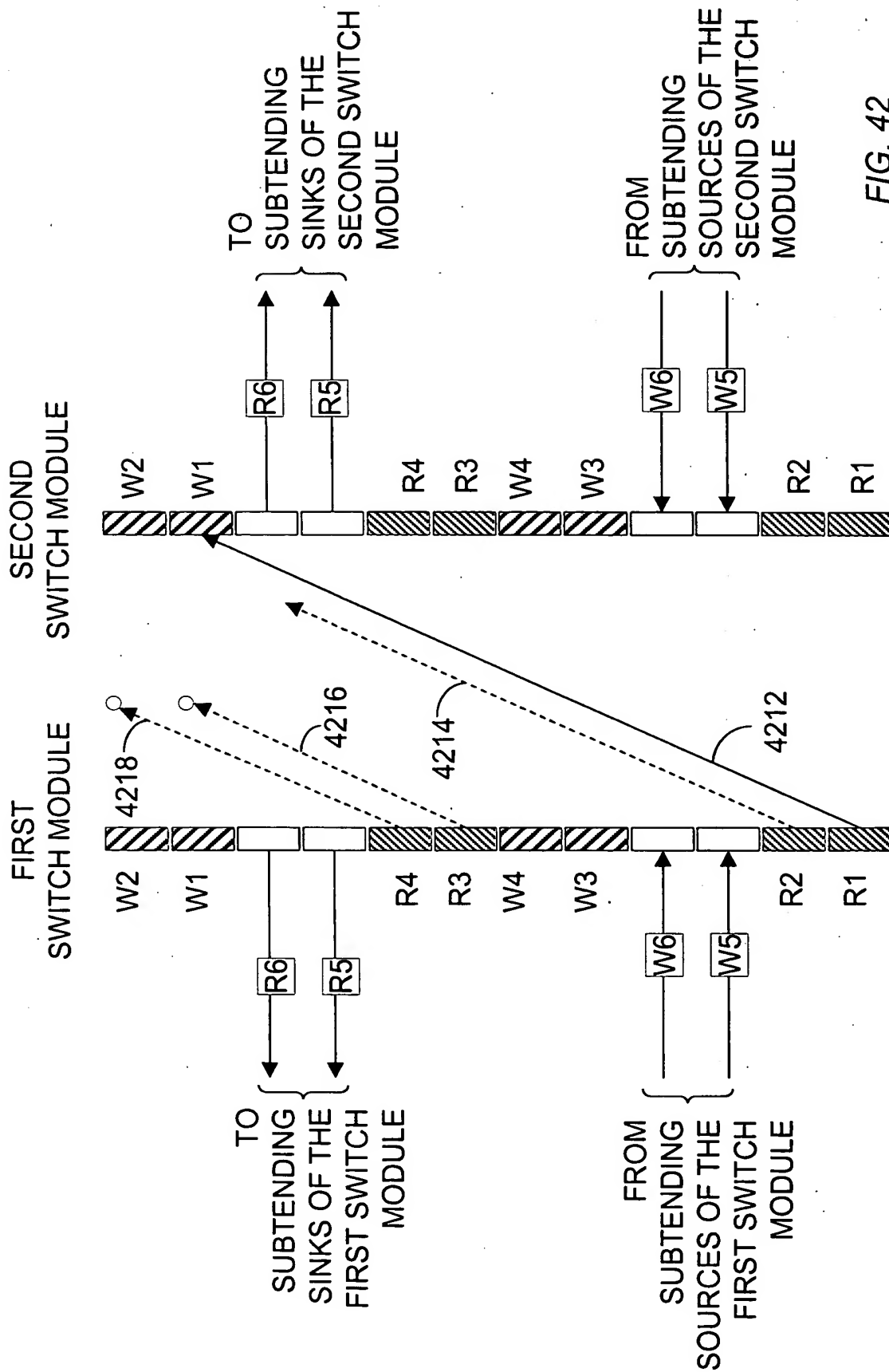


FIG. 42

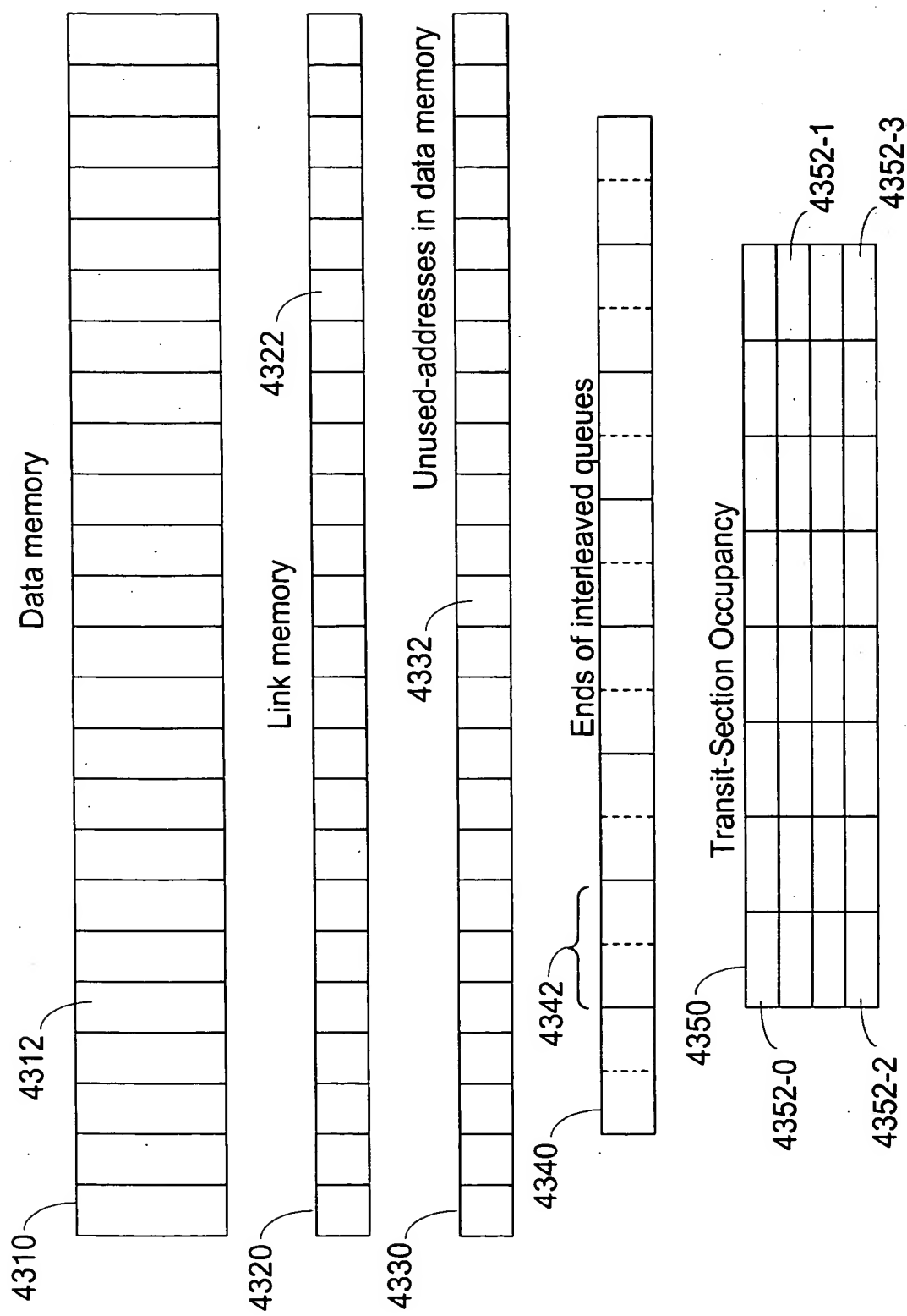


FIG. 43

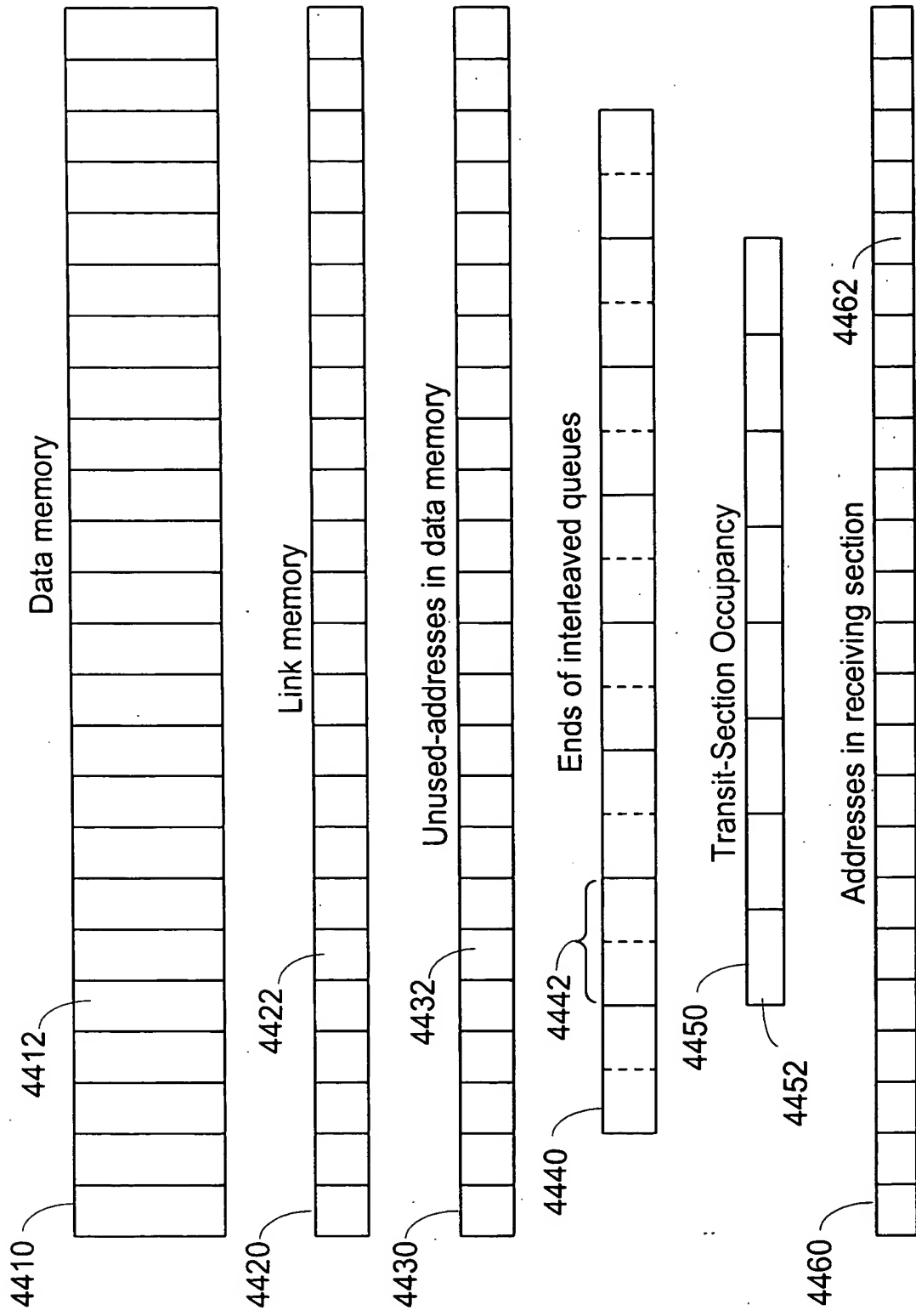


FIG. 44

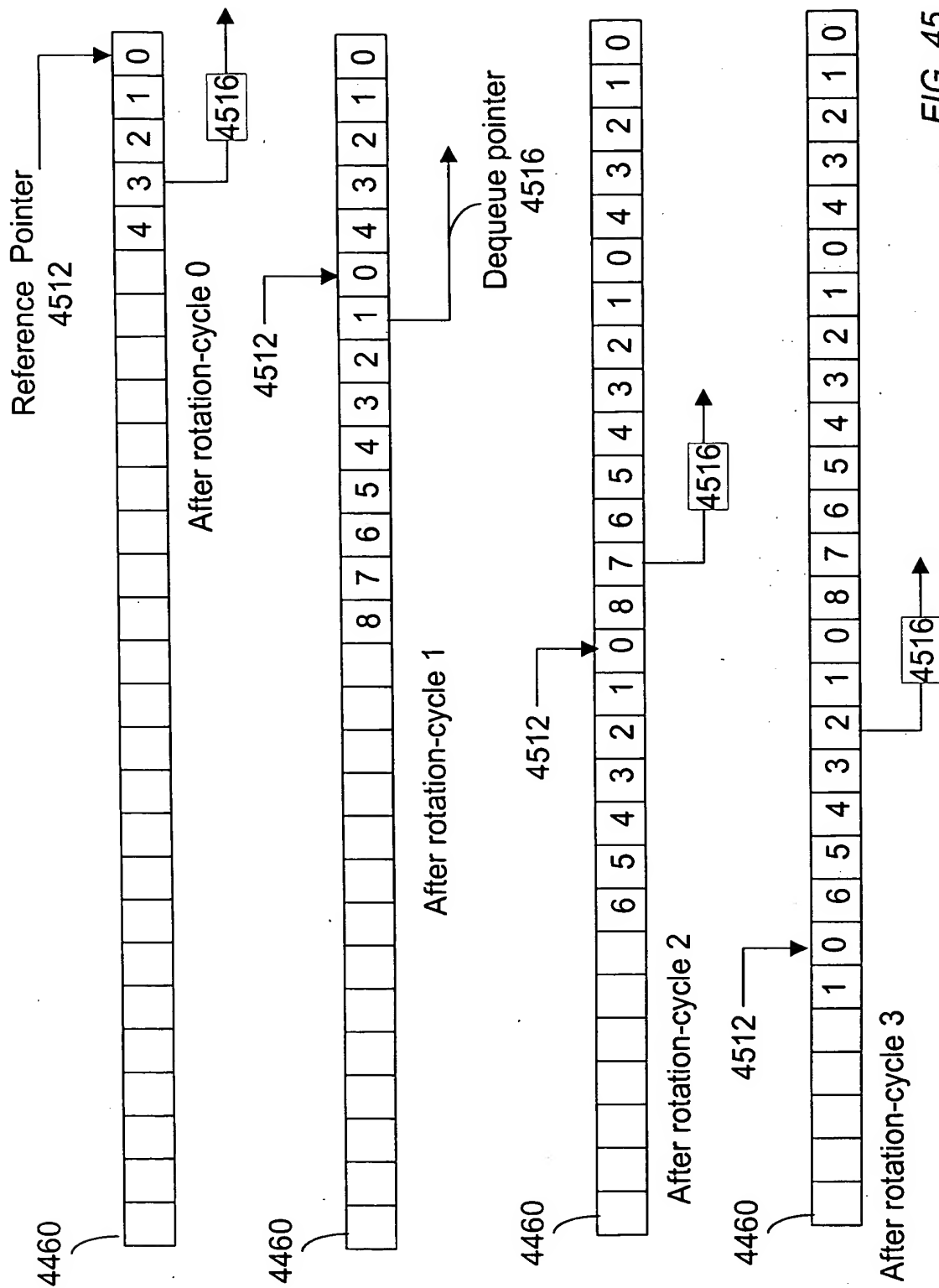
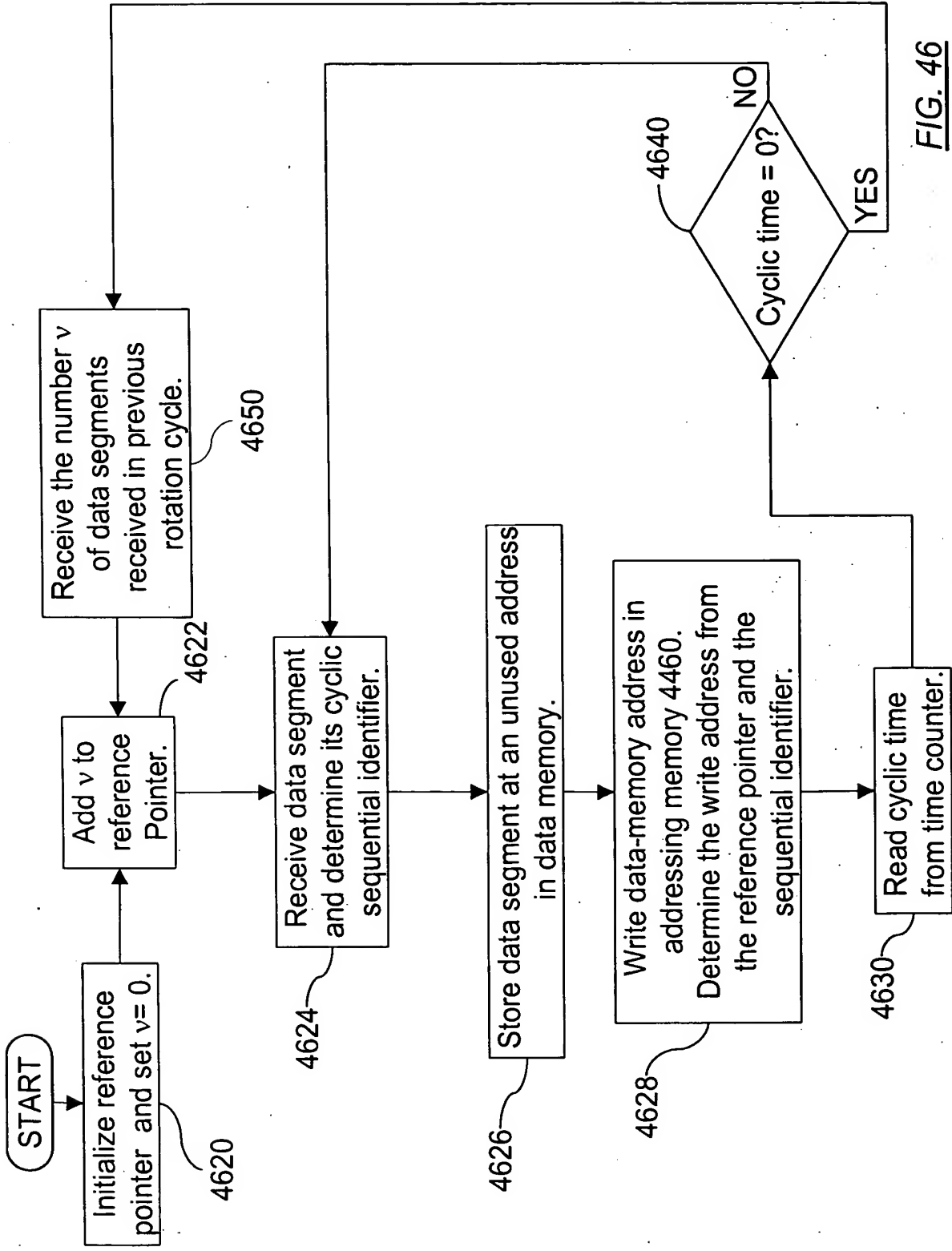


FIG. 45



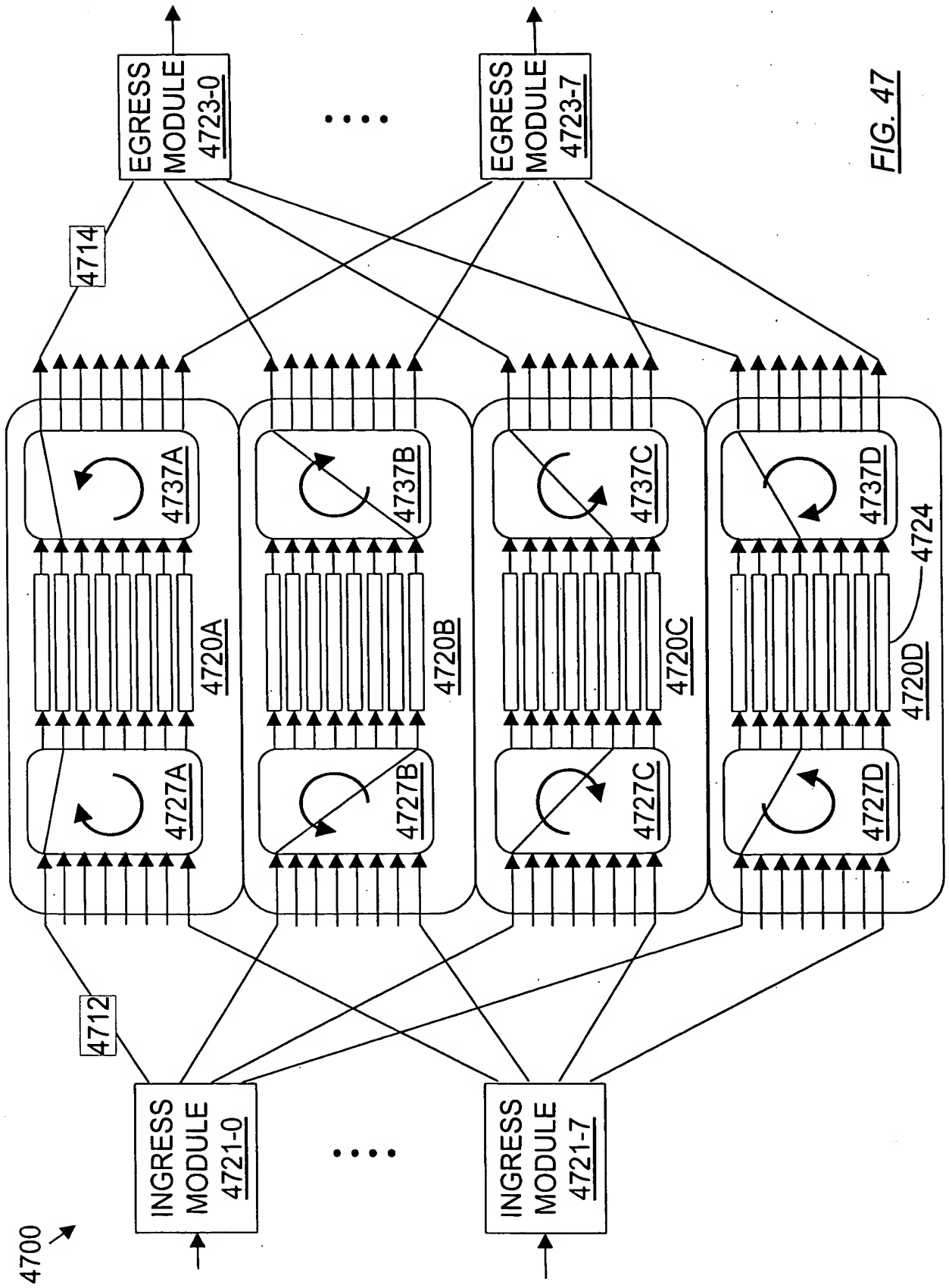


FIG. 47

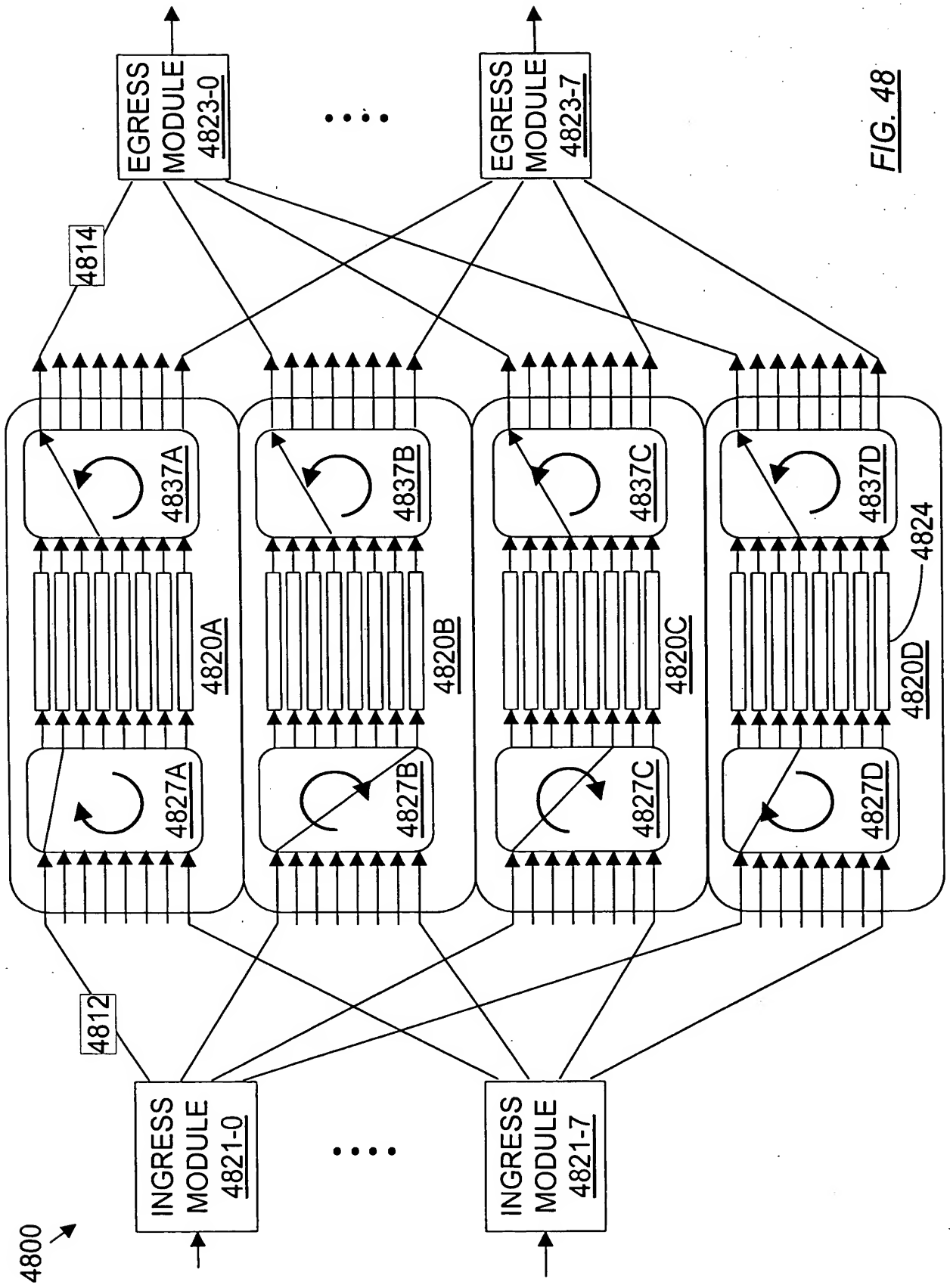


FIG. 48

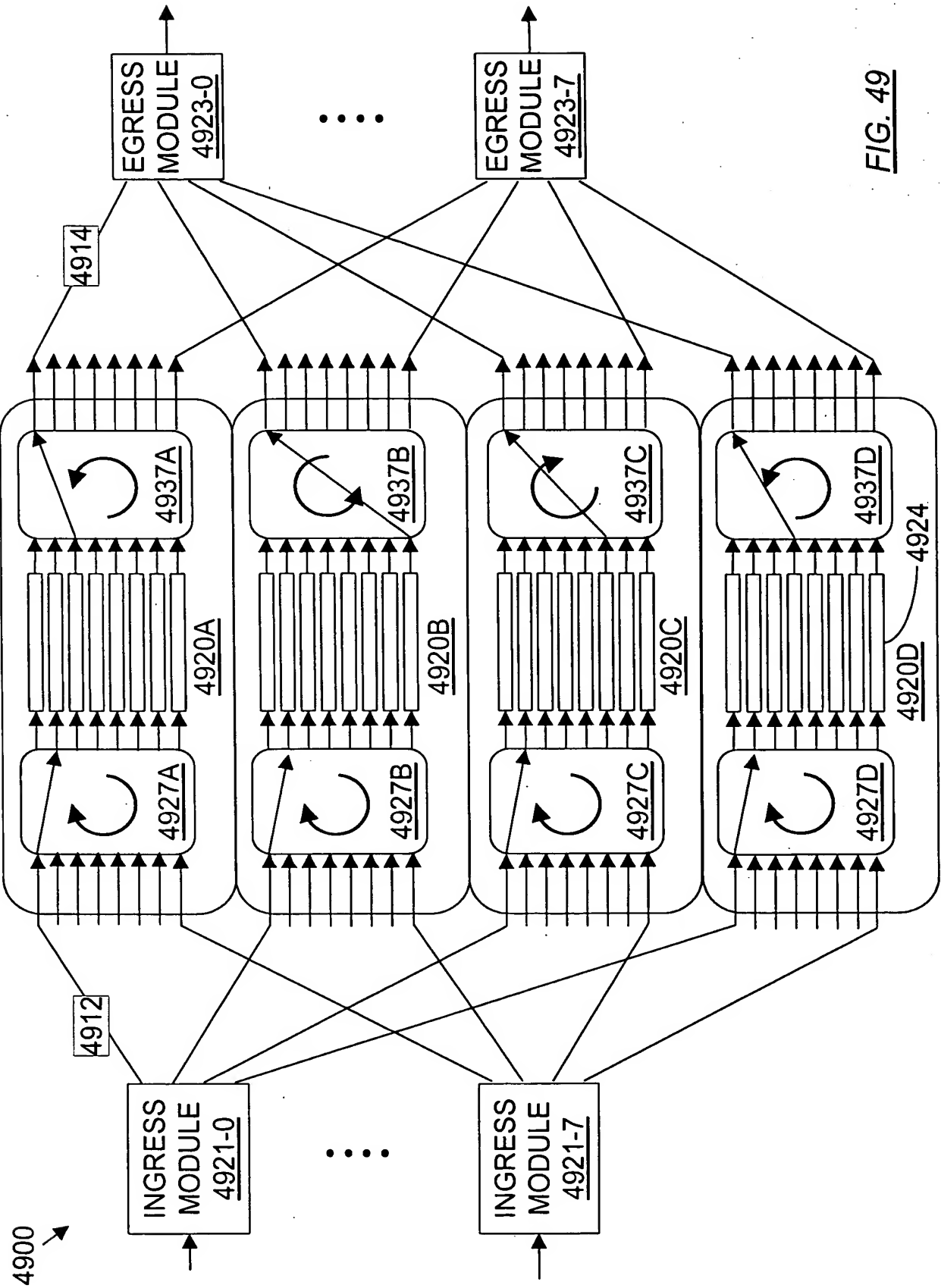


FIG. 49

5000 ↗

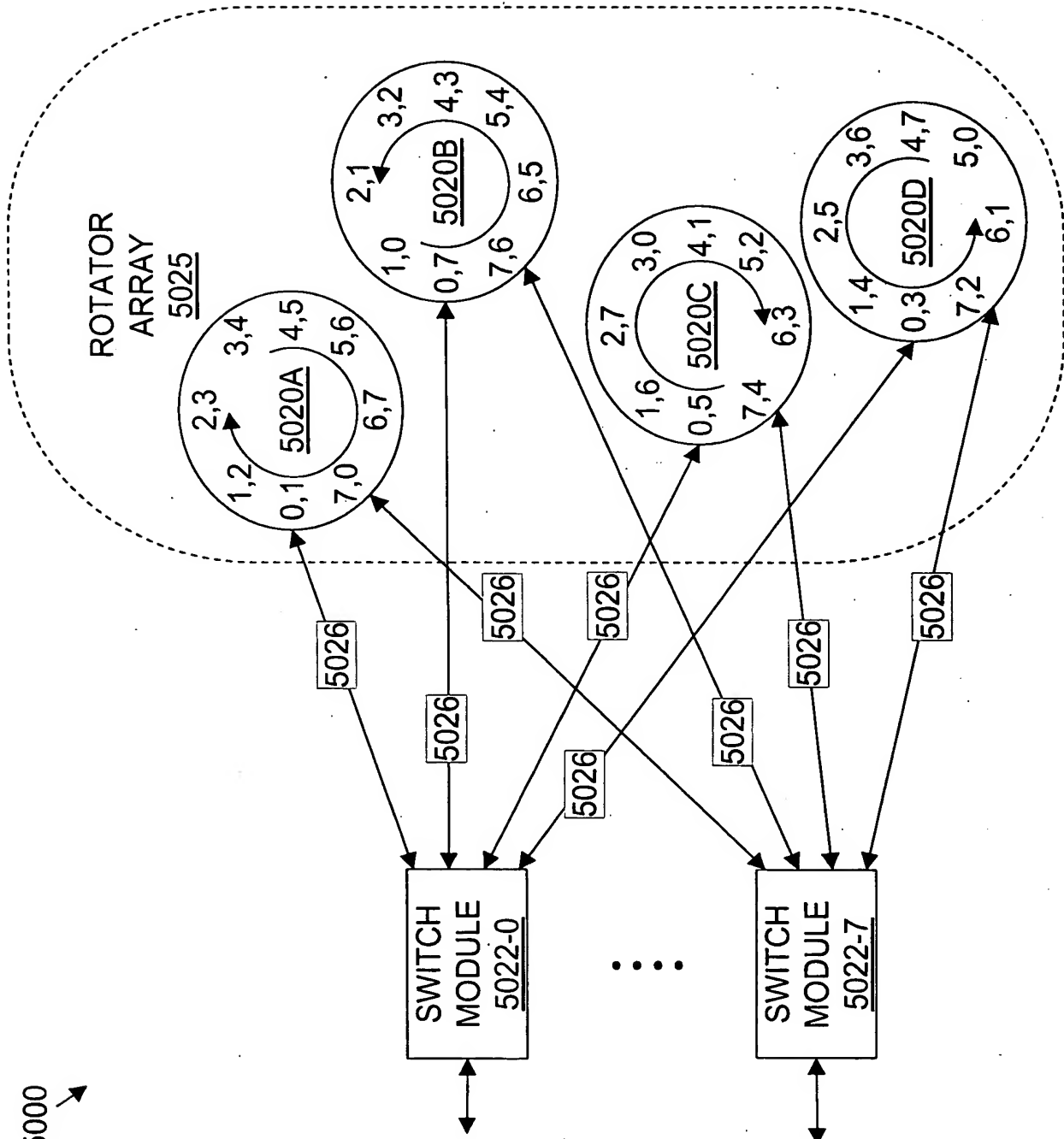


FIG. 50

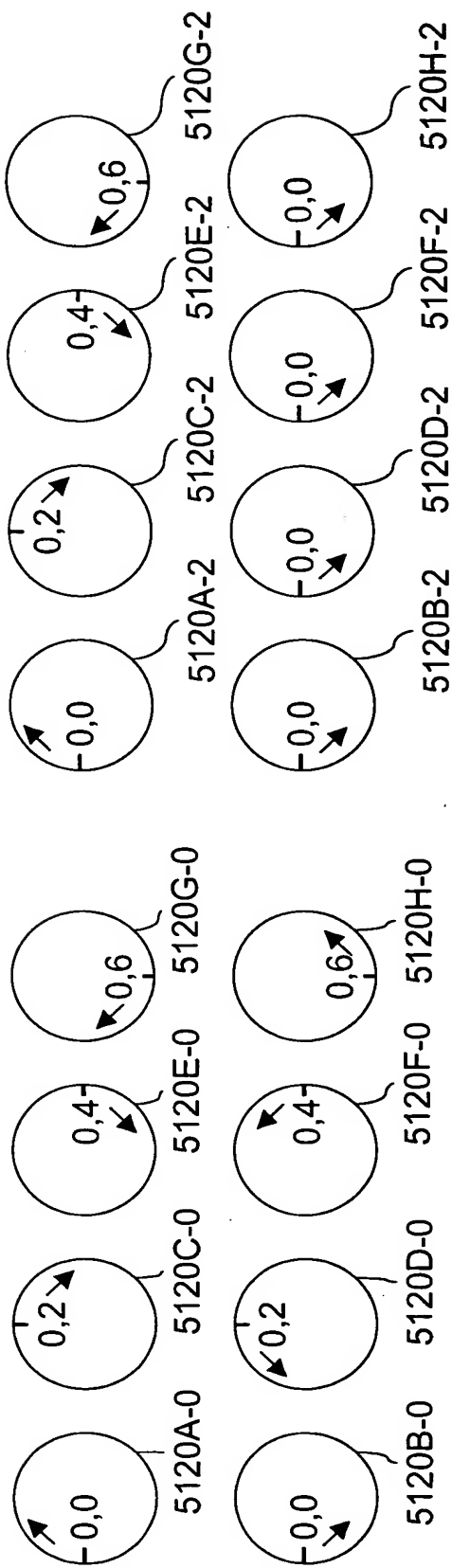


FIG. 51A

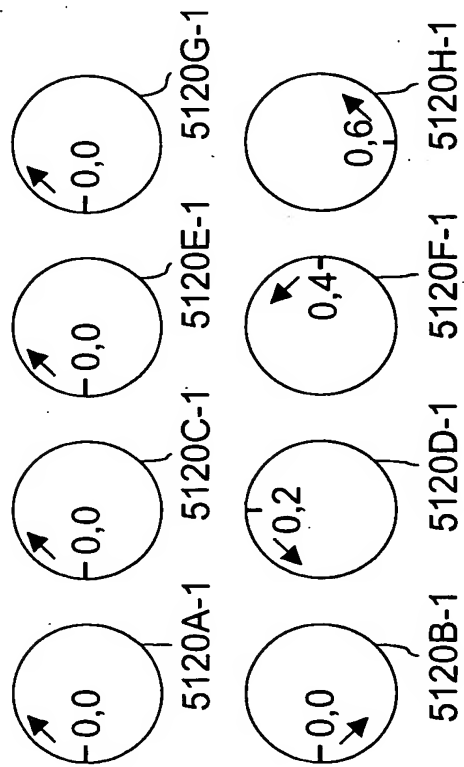


FIG. 51B

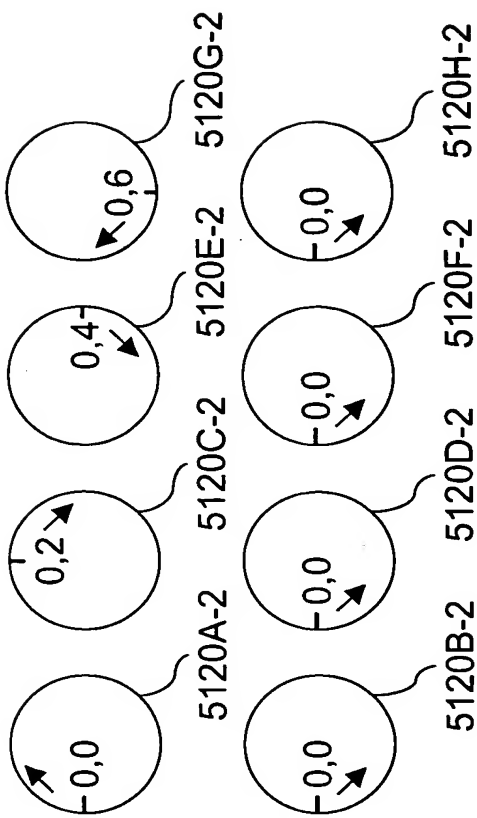


FIG. 51C

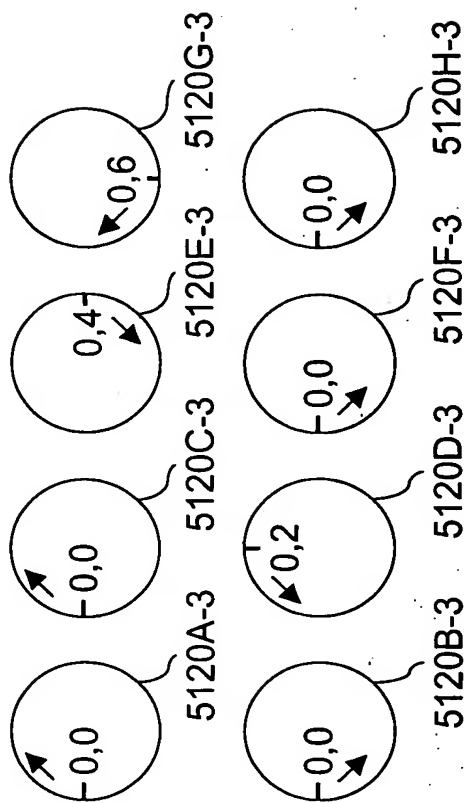


FIG. 51D

ROTATION PHASE $t = 0$ ($T=8$)

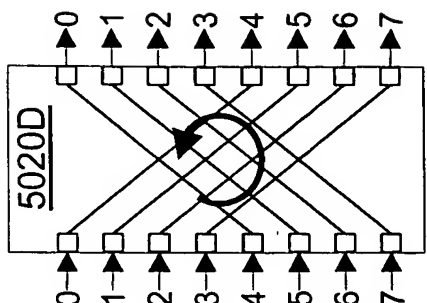
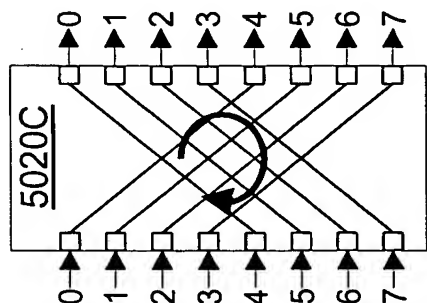
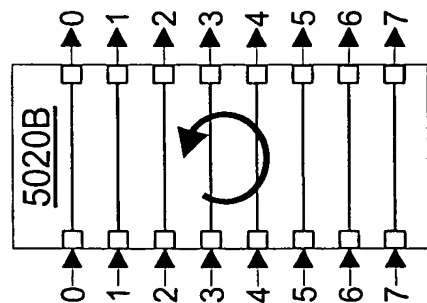
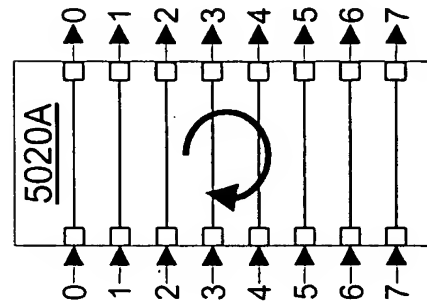


FIG. 52A

ROTATION PHASE $t = 6$ ($T=8$)

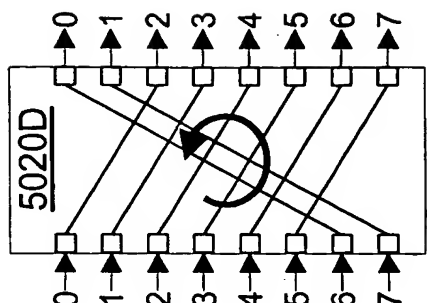
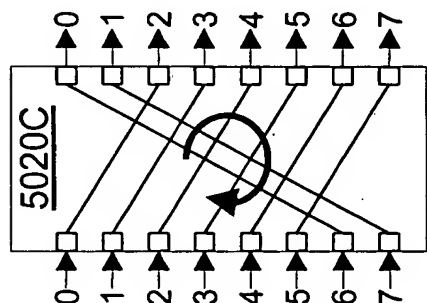
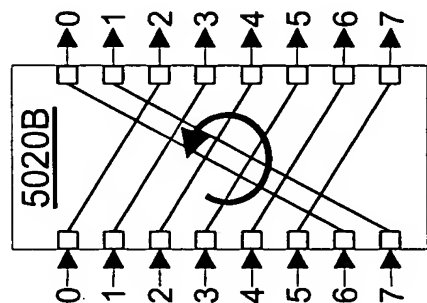
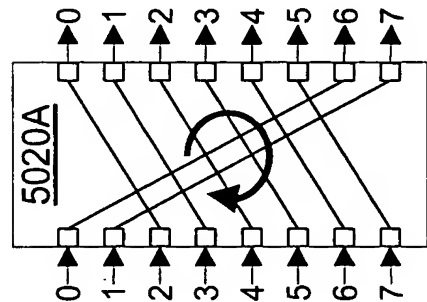


FIG. 52B

ROTATION PHASE $t = 0$ ($T=7$)

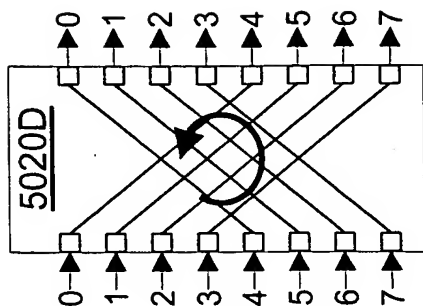
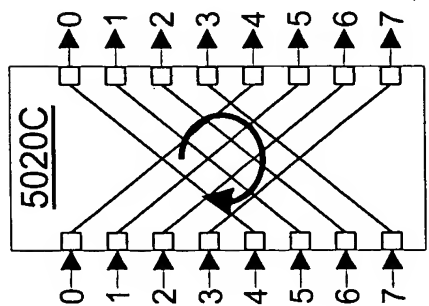
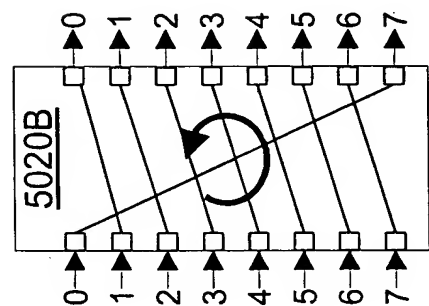
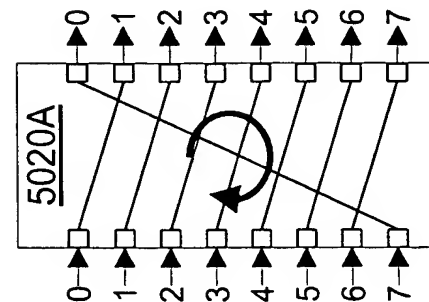


FIG. 53A

ROTATION PHASE $t = 6$ ($T=7$)

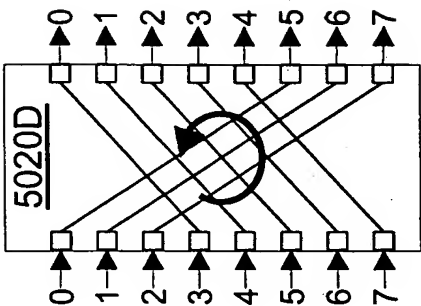
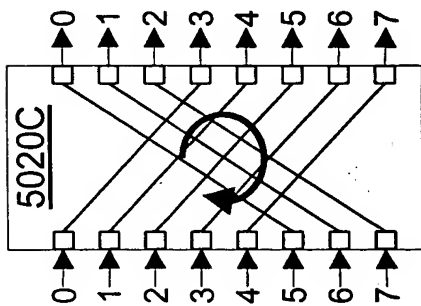
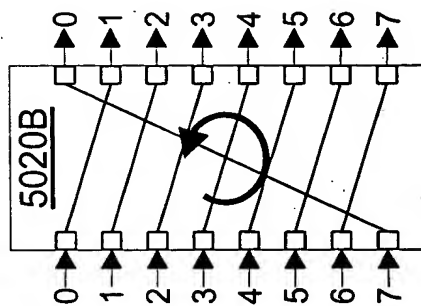
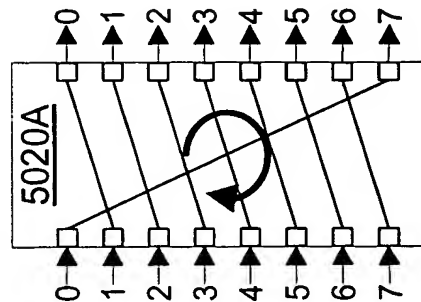


FIG. 53B

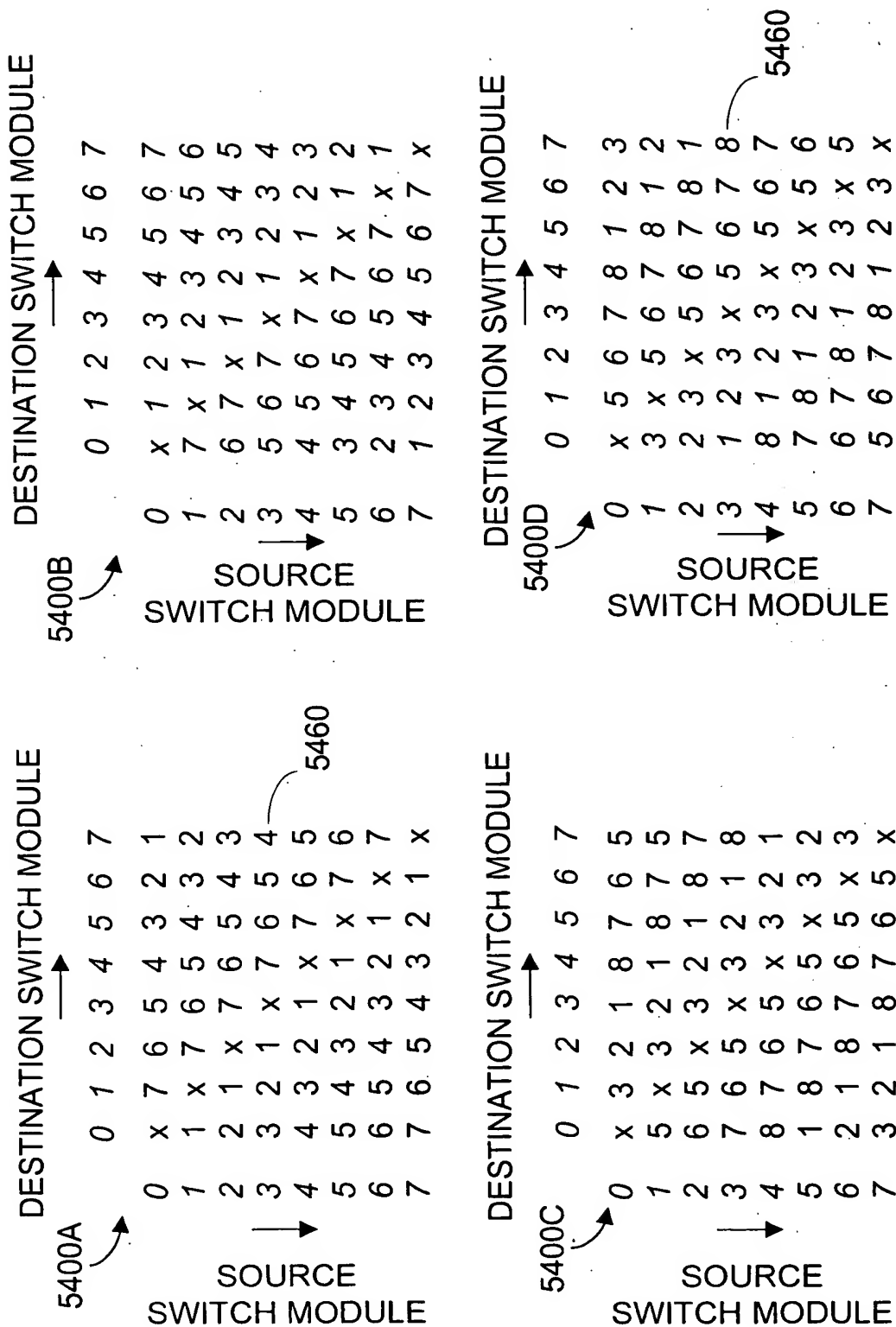


FIG. 54

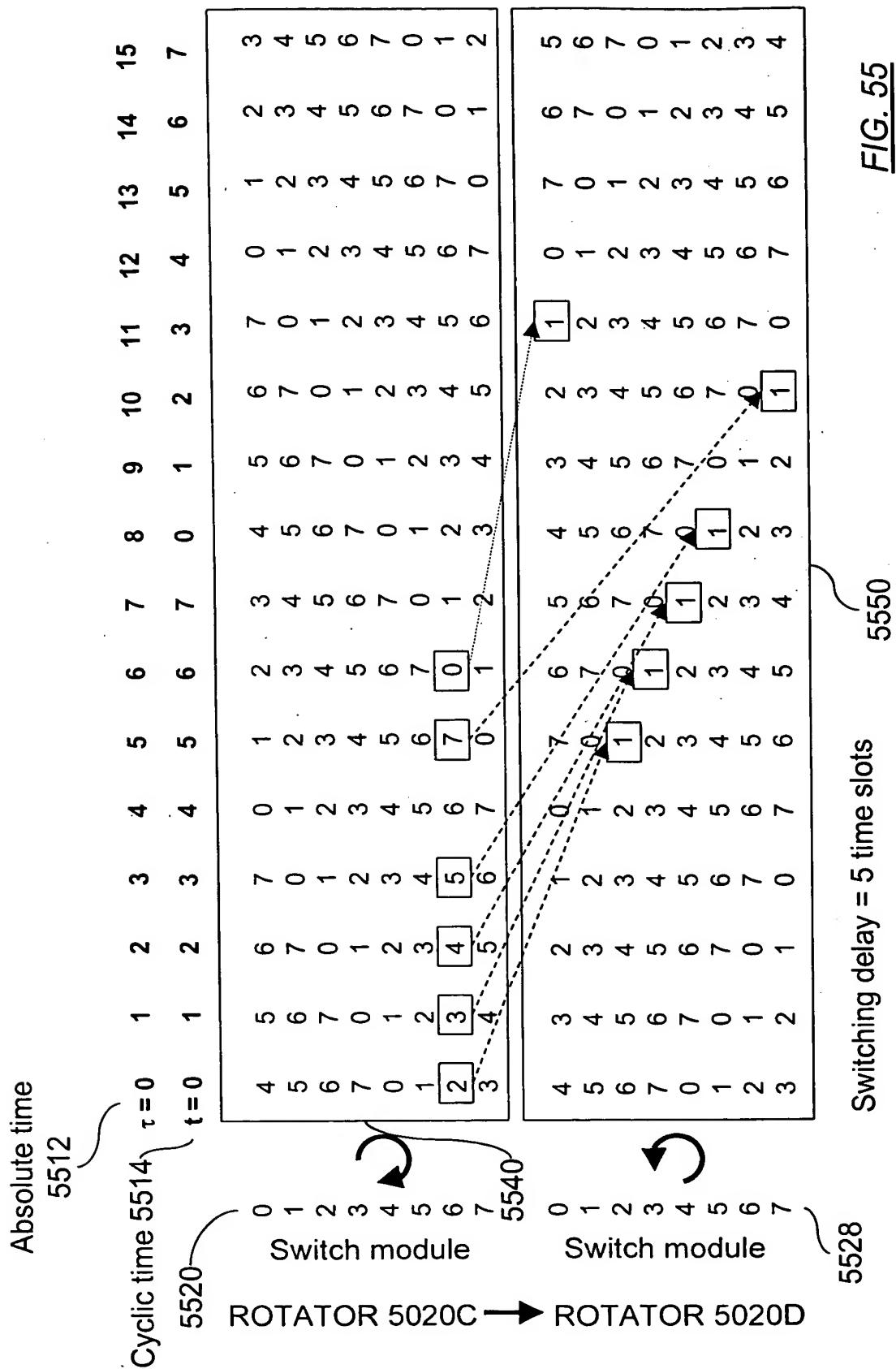


FIG. 55

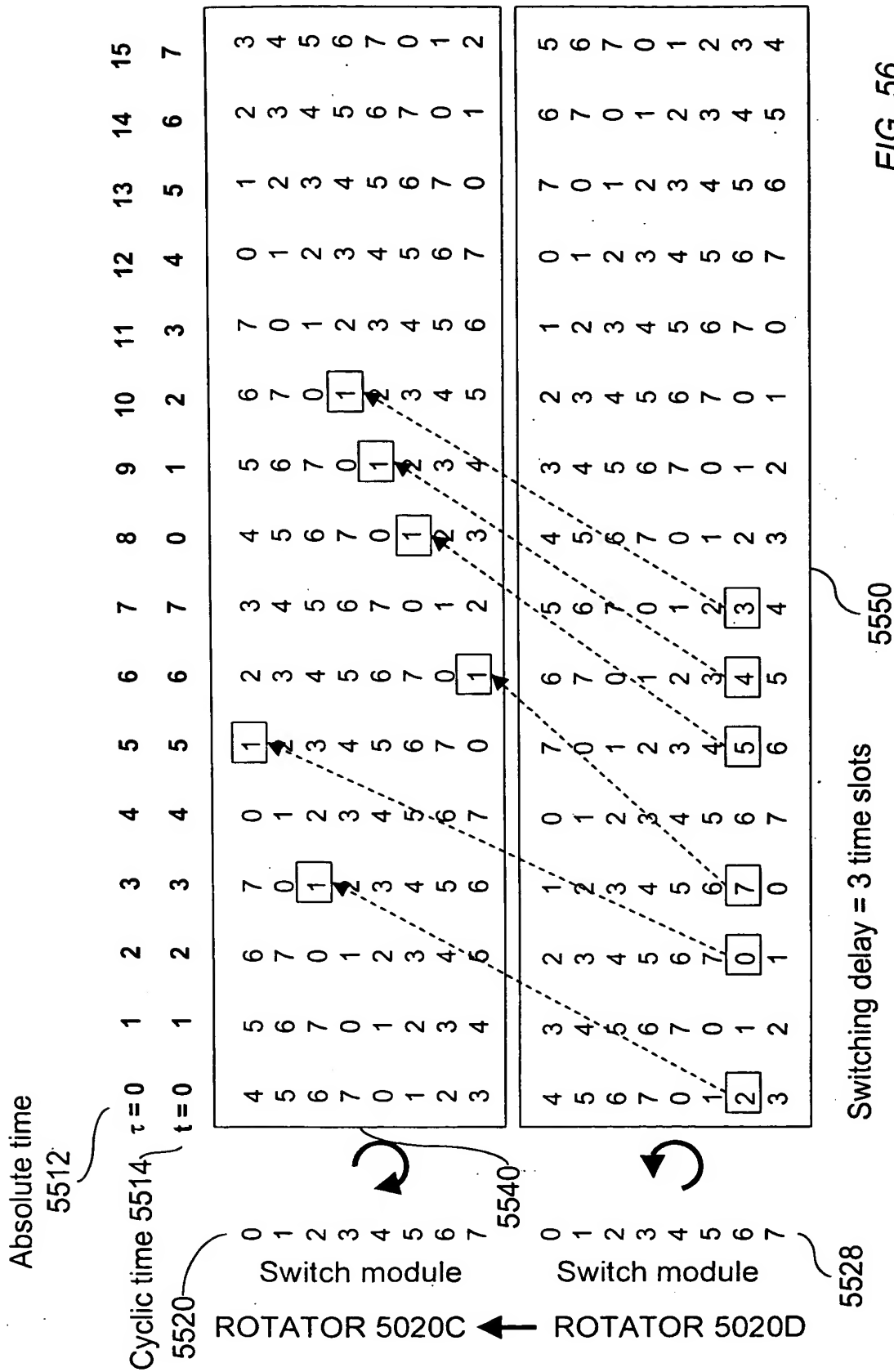


FIG. 56

Absolute time
5712

Cyclic time 5714

$\tau = 0$

$t = 0$

5720

Switch module

ROTATOR 5020A

5740

Switch module

ROTATOR 5020D

5728

Switching delay = 1 time slot

5750

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
1	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
2	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1
3	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2
4	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3
5	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4
6	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5
7	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6
0	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
1	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
2	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1
3	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2
4	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3
5	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4
6	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5
7	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6
0	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
1	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
2	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1
3	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2
4	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3
5	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4
6	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5
7	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6

FIG. 57

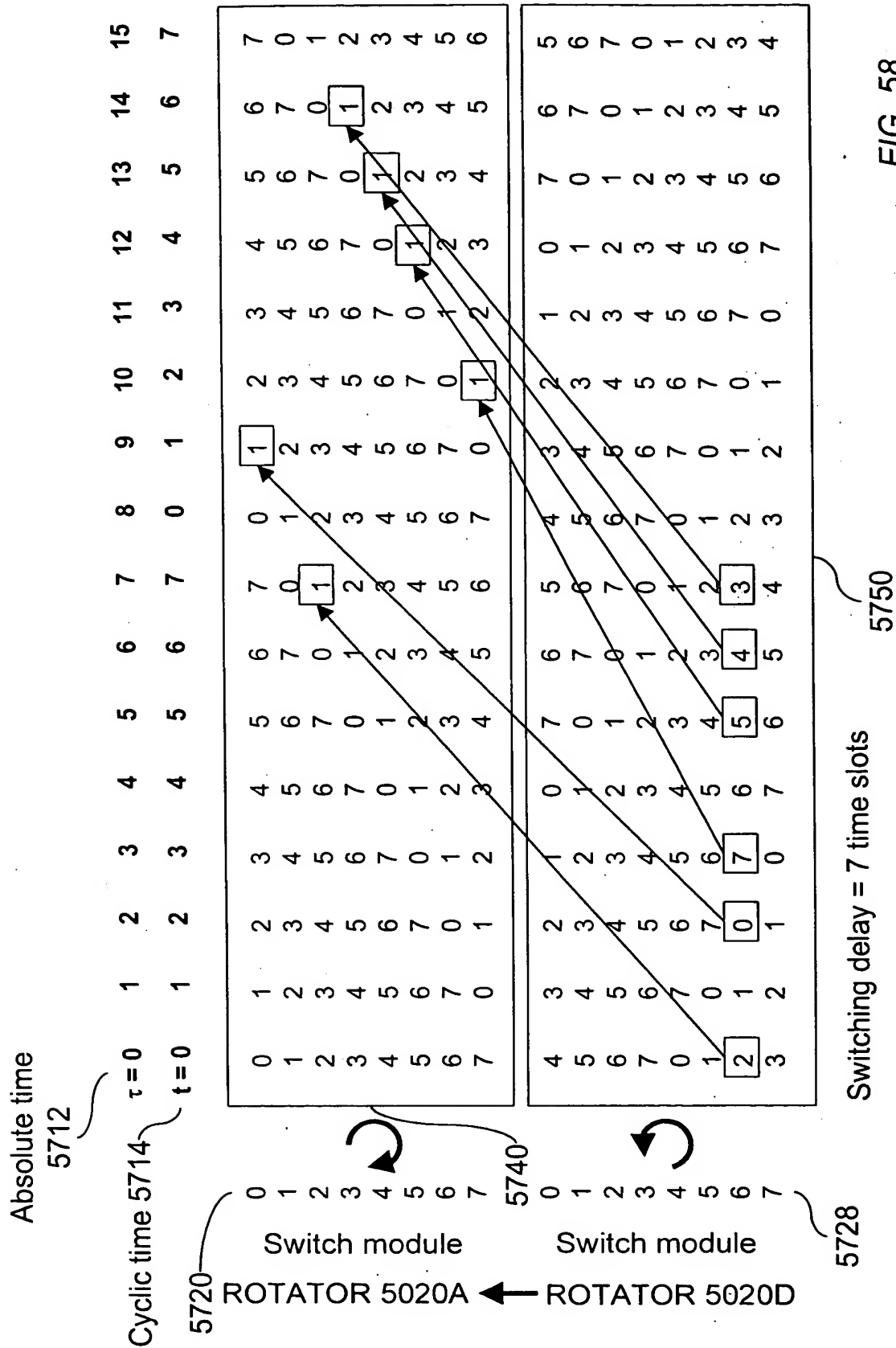


FIG. 58

Absolute time
5912

Cyclic time 5914
 $\tau=0$
 $t=0$
5920

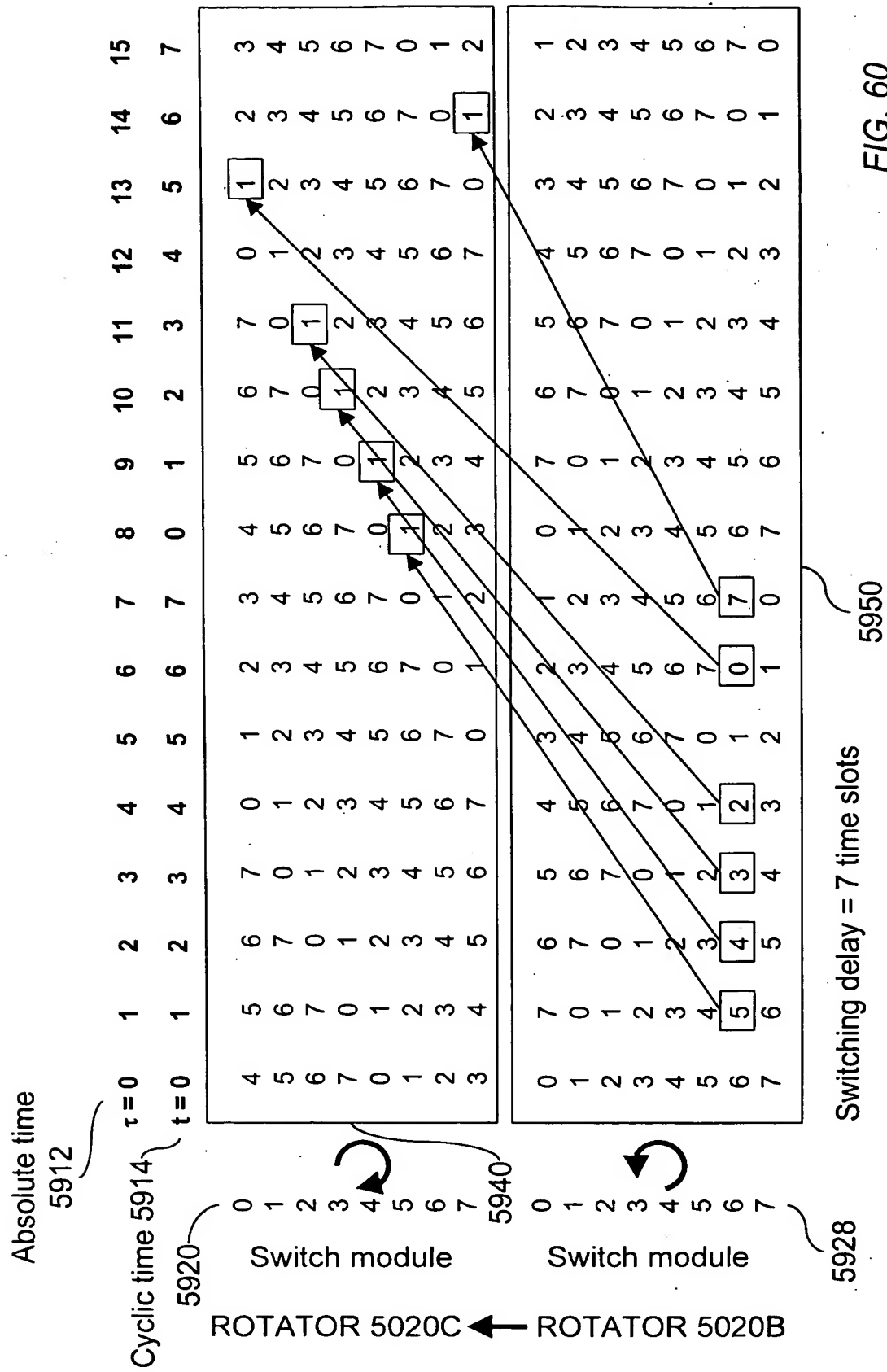
ROTATOR 5020C → ROTATOR 5020B

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3
5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4
6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5
7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6
0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1
3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2
0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1
3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2
4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3
5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4
6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5
7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6
0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1
3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2
4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3
5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4
6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5
7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6
0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1
3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2
4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3
5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4
6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5
7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6
0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1
3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2
4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3
5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4
6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5
7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6
0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1
3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2
4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3
5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4
6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5
7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6

Switching delay = 1 time slot

5950

FIG. 59



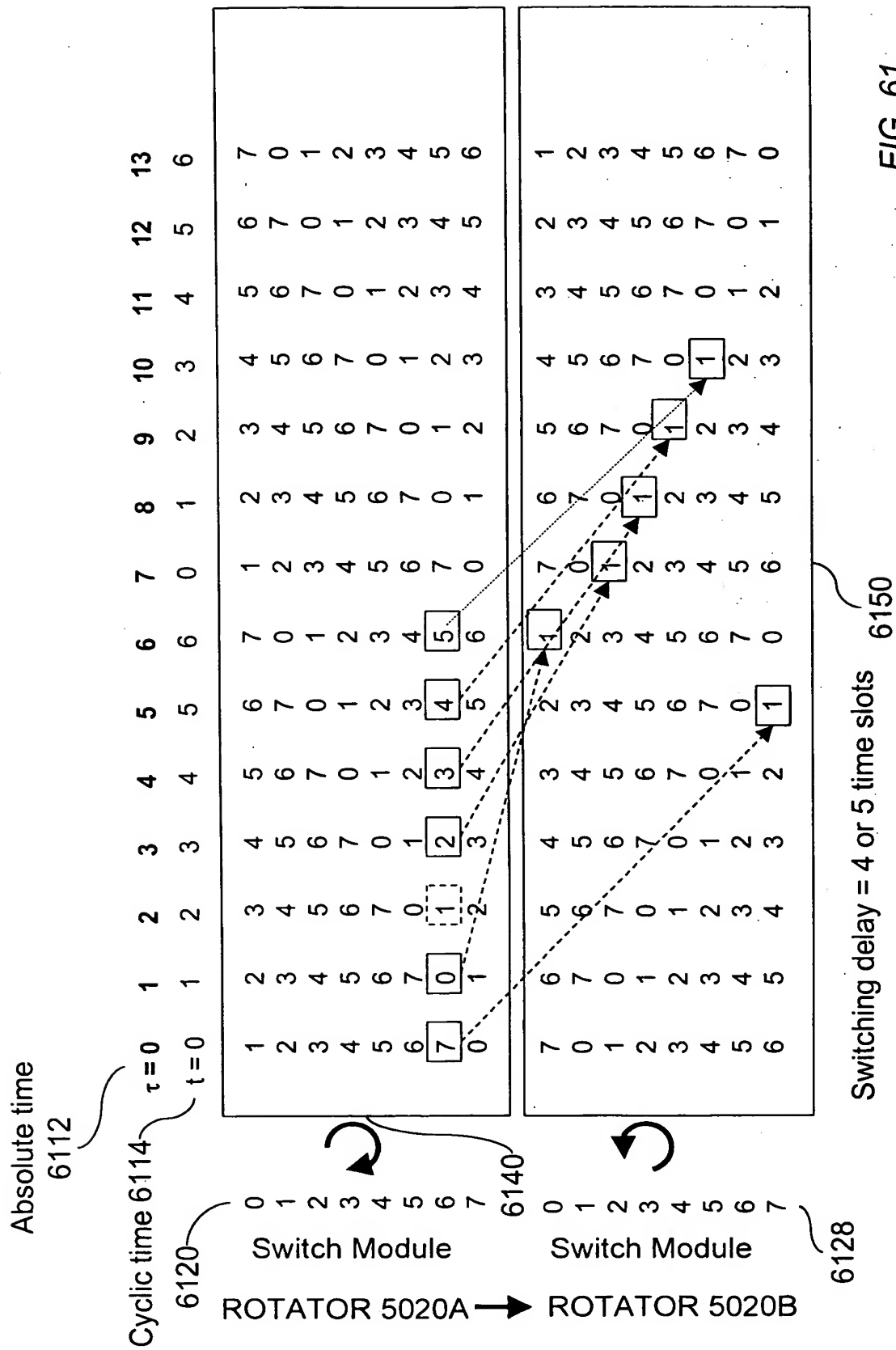


FIG. 61

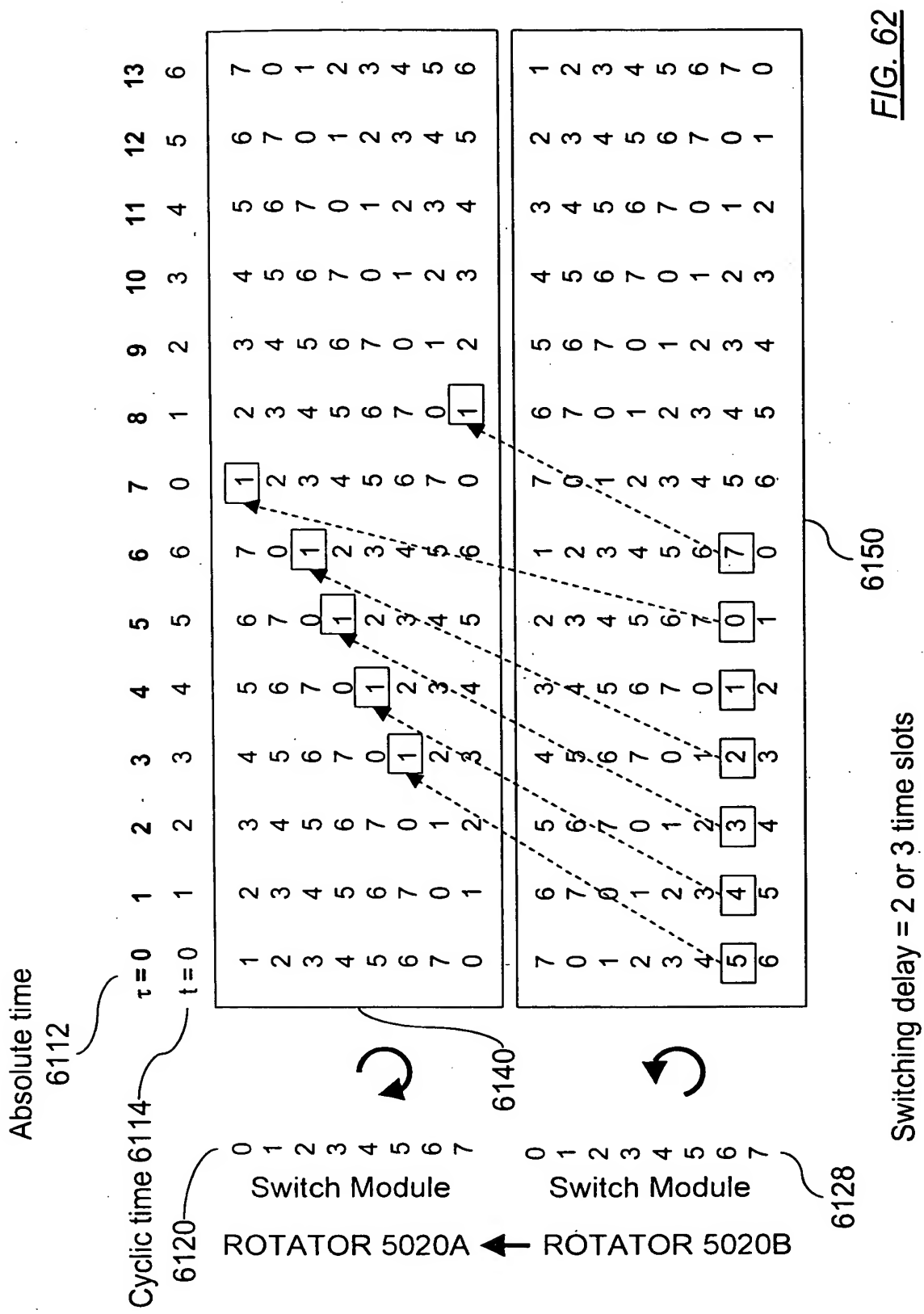
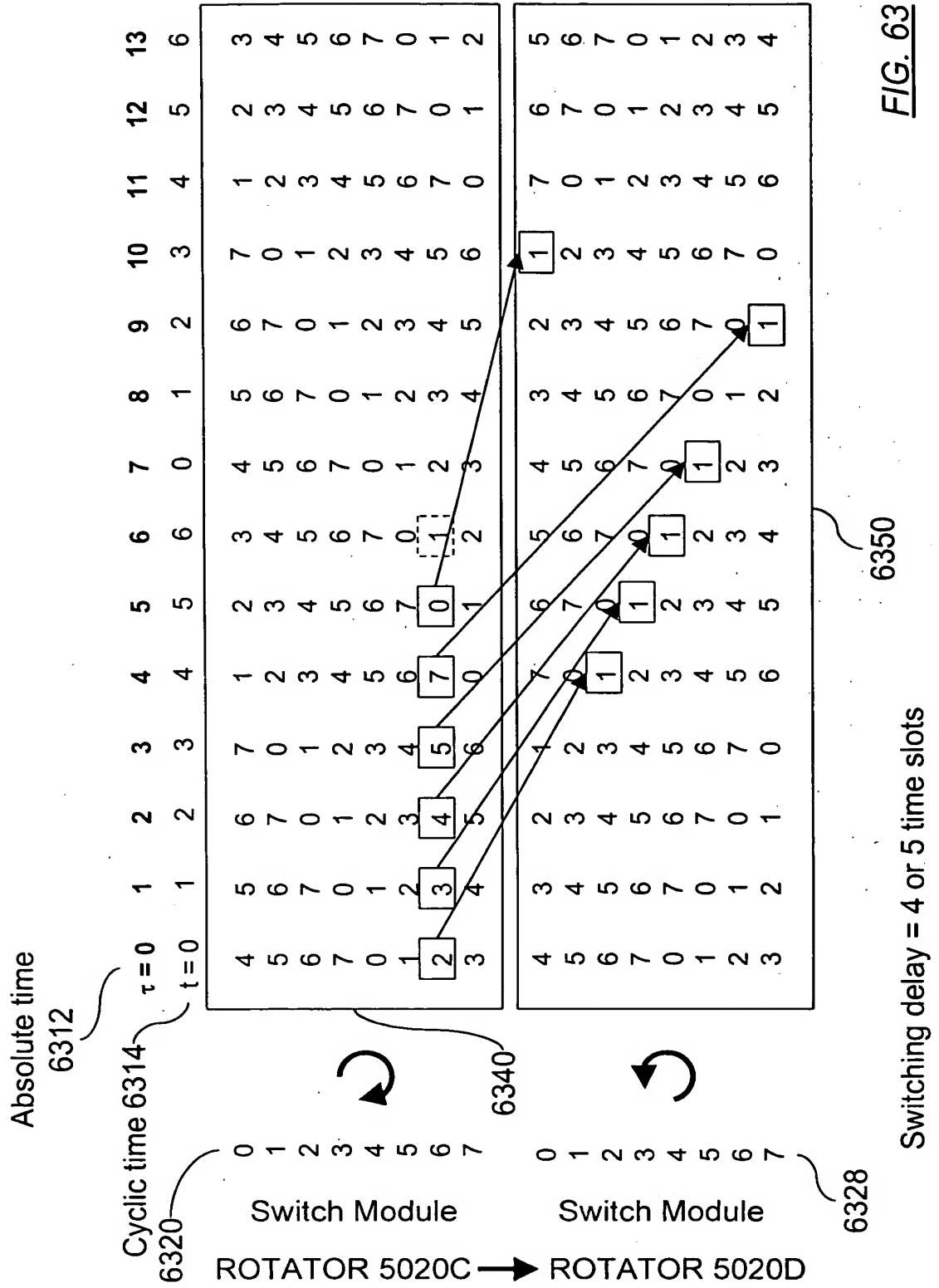
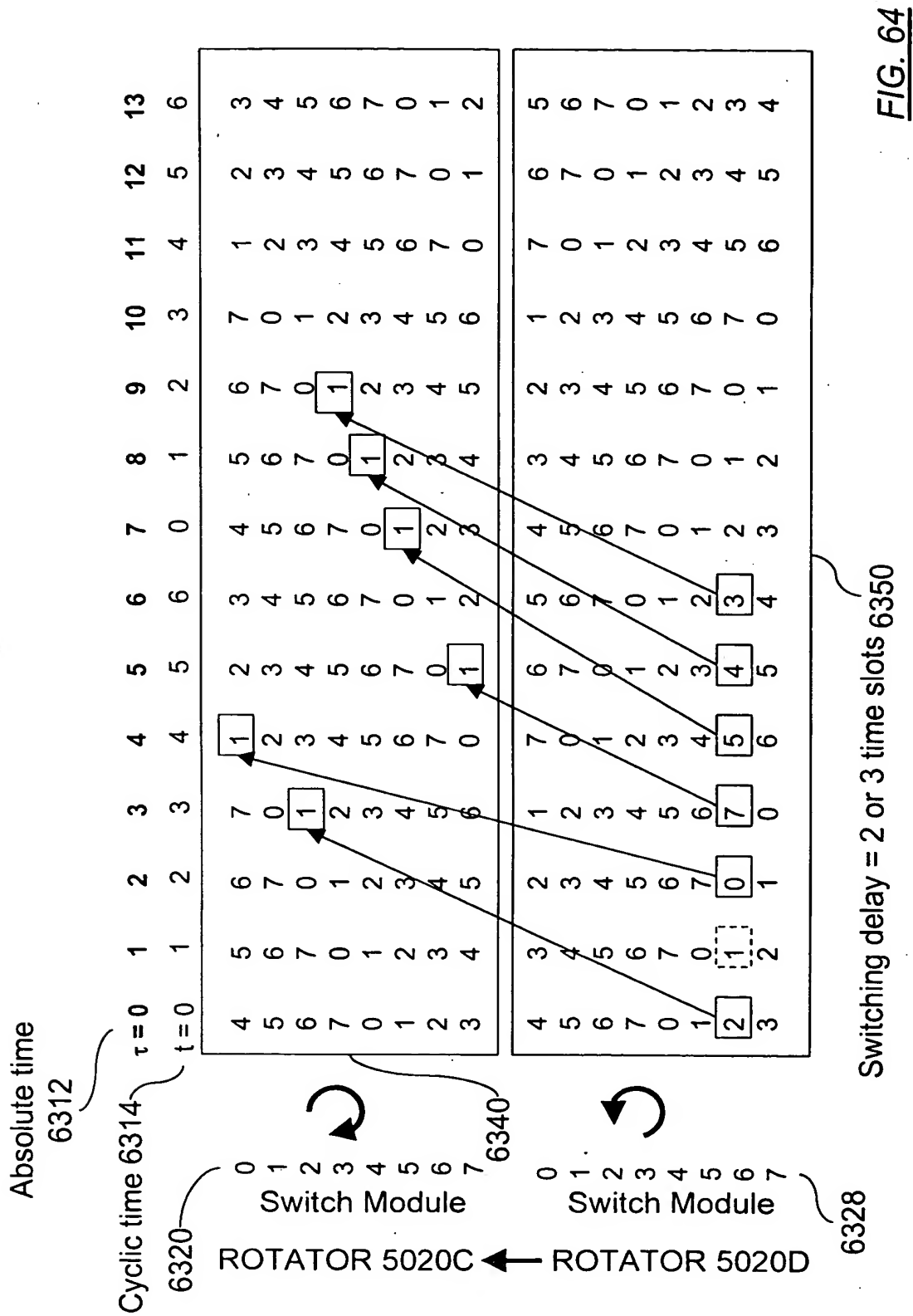


FIG. 62





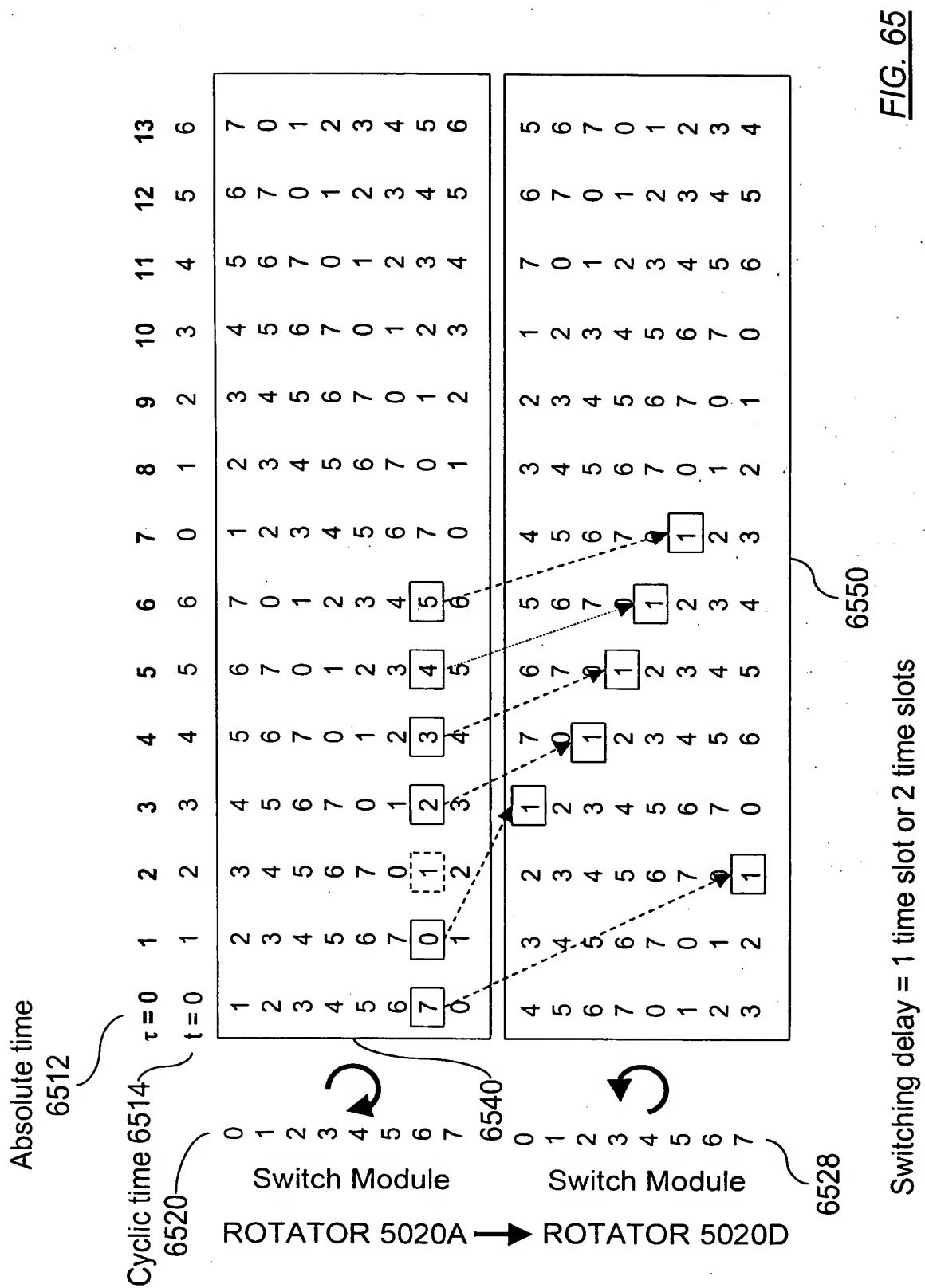


FIG. 65

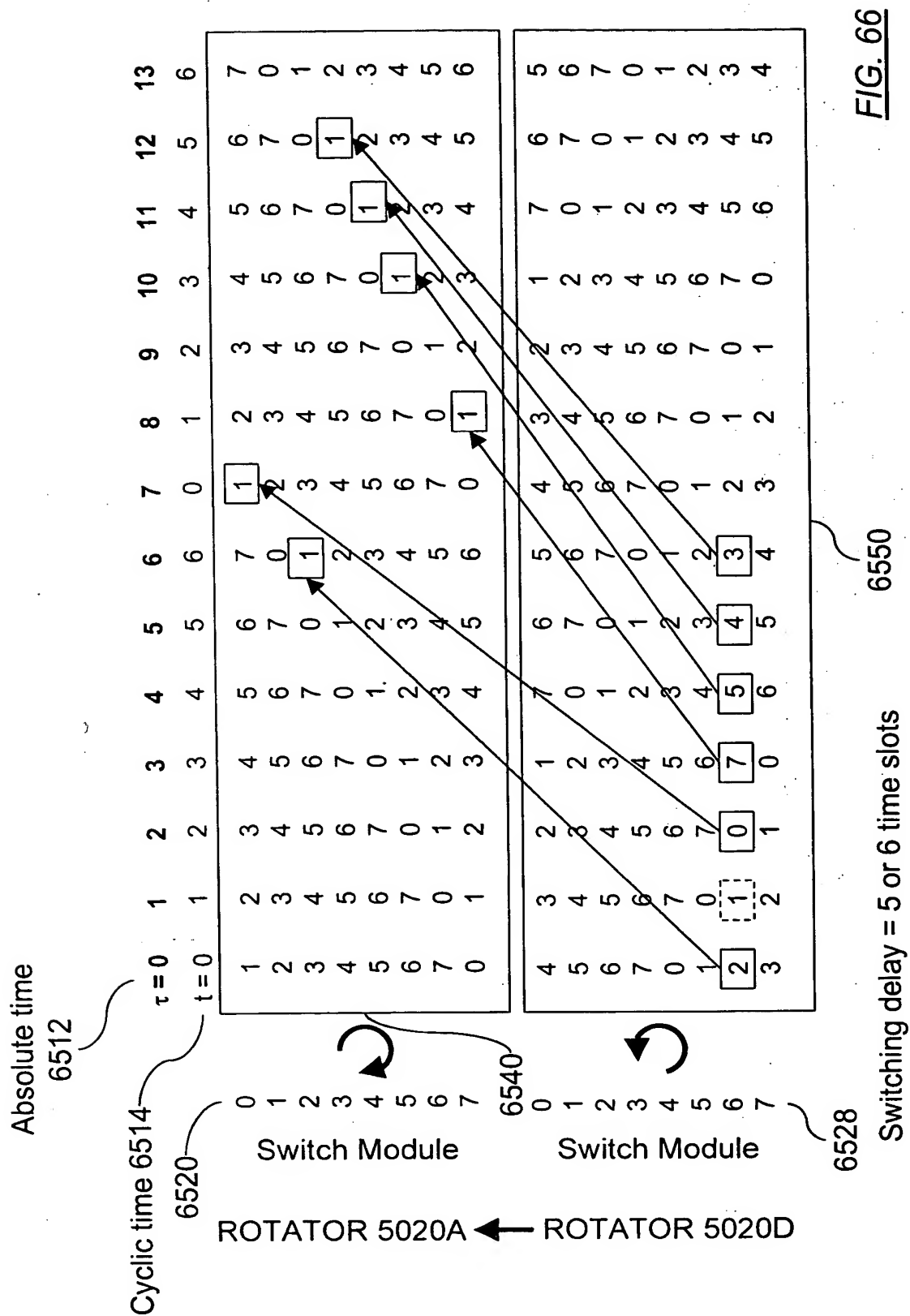
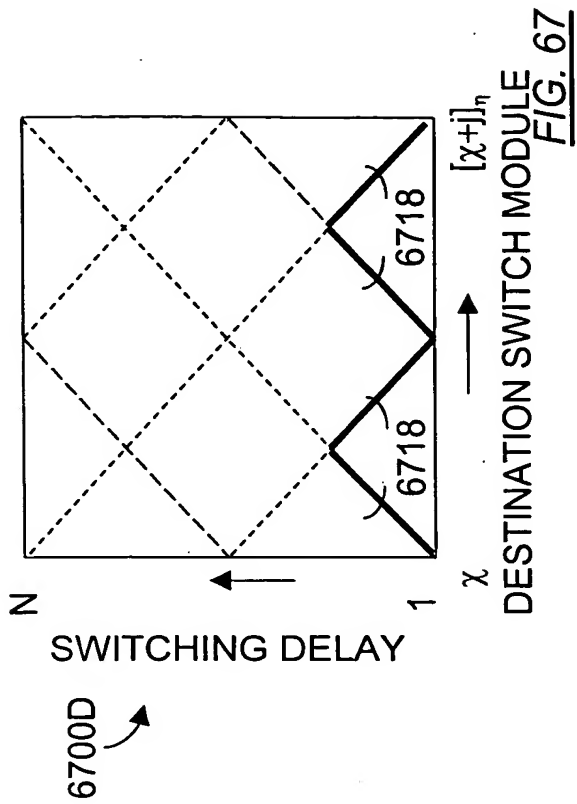
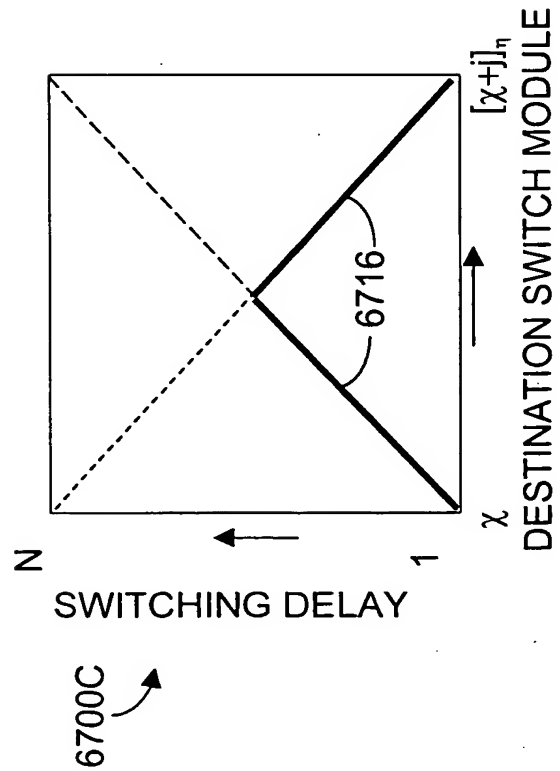
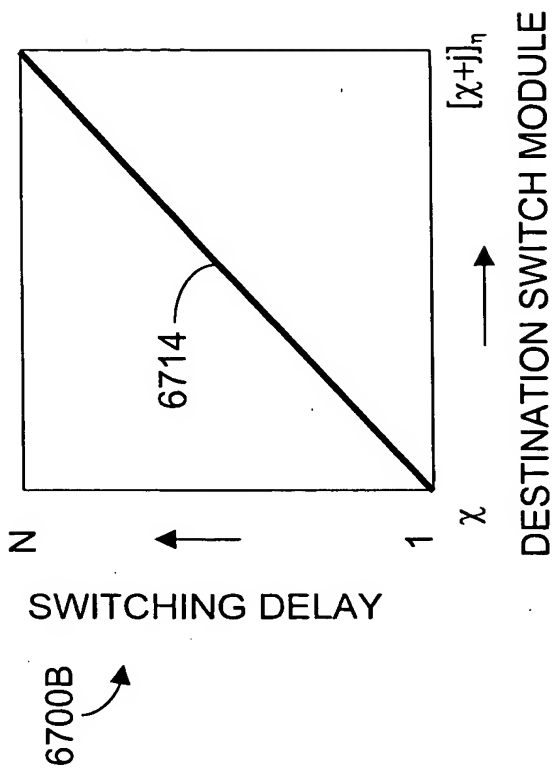
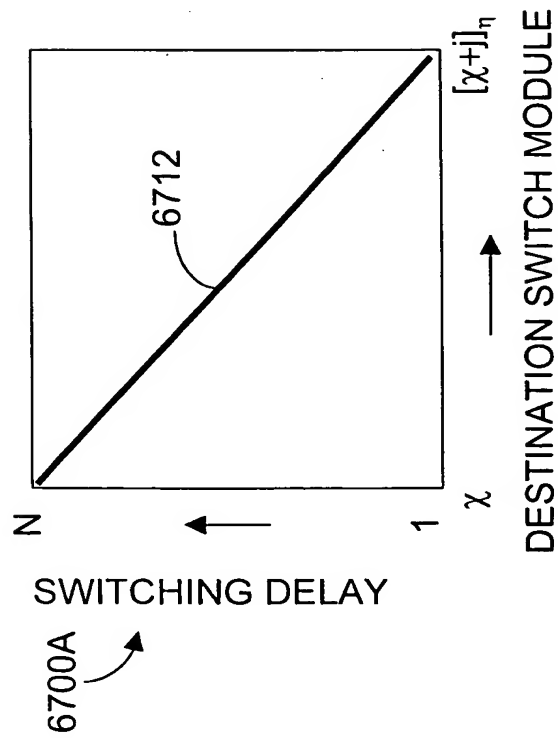


FIG. 66



6800

6823

6824

From switch module

To switch module

DIRECT PATHS

0	1	2	3	4	5	6	7
x	0 0	0 0	0 0	1 1	0 0	0 0	1 1
1 0	x	0 0	0 0	0 0	0 0	0 0	0 0
0 0	1 1	x	0 1	0 0	1 0	1 1	1 1
0 0	0 0	0 0	x	0 1	0 0	0 0	0 0
0 0	0 0	1 1	0 1	x	1 0	0 0	0 0
0 0	1 1	1 0	0 0	0 0	x	1 0	1 1
0 0	1 1	1 1	0 0	0 0	0 0	x	1 1
0 0	1 0	0 1	1 1	0 1	1 0	0 1	x

FIG. 68

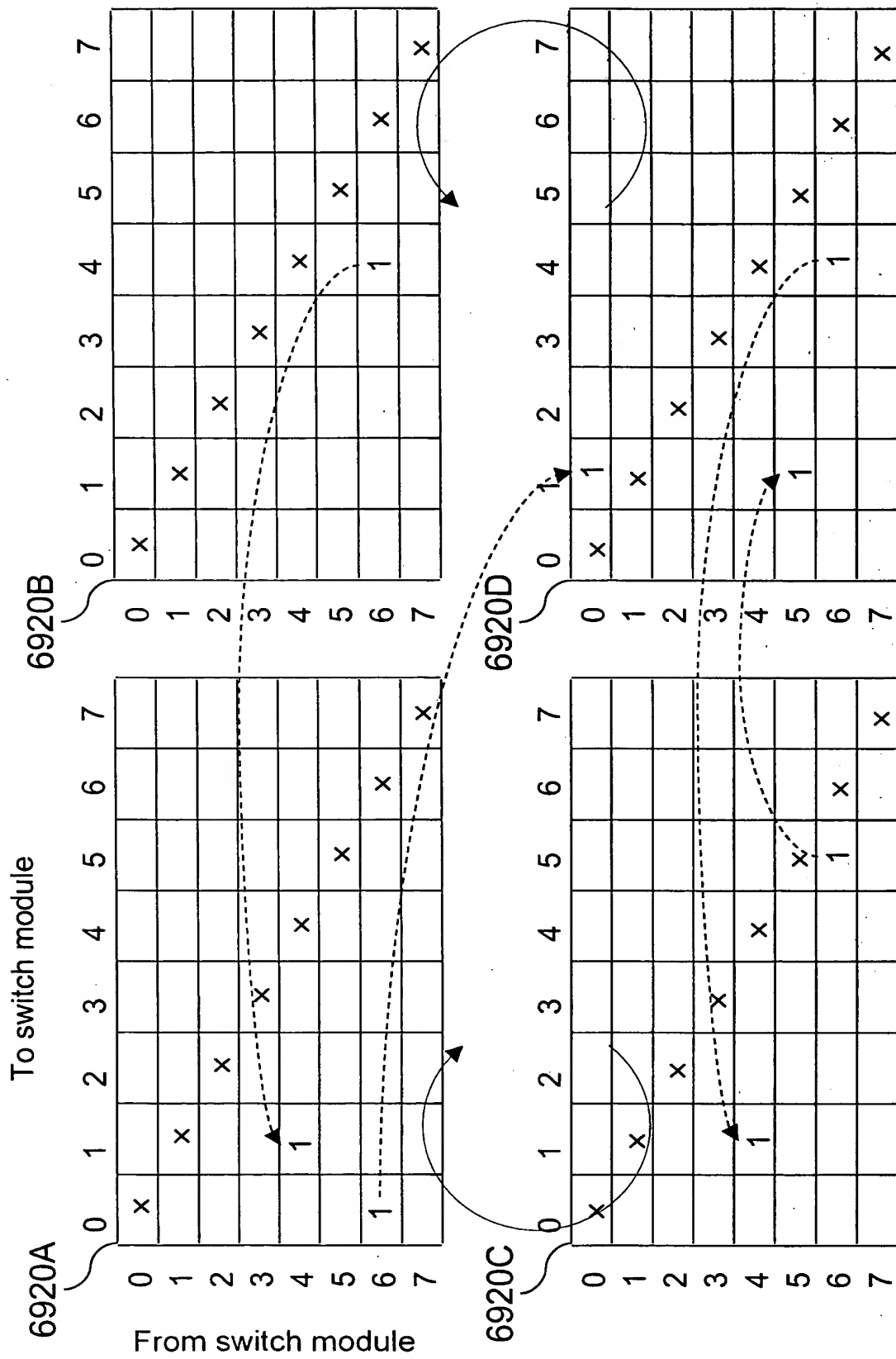


FIG. 69

		DIRECT PATHS								
7023	From switch module	To switch module								
		0	1	2	3	4	5	6	7	
	0	x	000 000	000 000	000 000	010 110	000 000	000 000	000 000	010 010
	1	110 000	x	000 000	000 000	000 000	000 000	000 000	000 000	000 000
	2	000 000	010 110	x	000 101	000 000	110 000	110 010	010 110	
	3	000 000	000 000	000 000	x	000 101	000 000	000 000	000 000	000 000
	4	000 000	000 000	010 110	000 110	x	010 000	000 000	000 000	000 000
	5	000 000	010 110	110 000	000 000	000 000	x	101 000	010 110	
	6	000 000	110 001	010 110	000 000	000 000	000 000	x	010 110	
	7	000 000	001 000	000 110	110 110	000 001	010 000	000 010	x	

FIG. 70

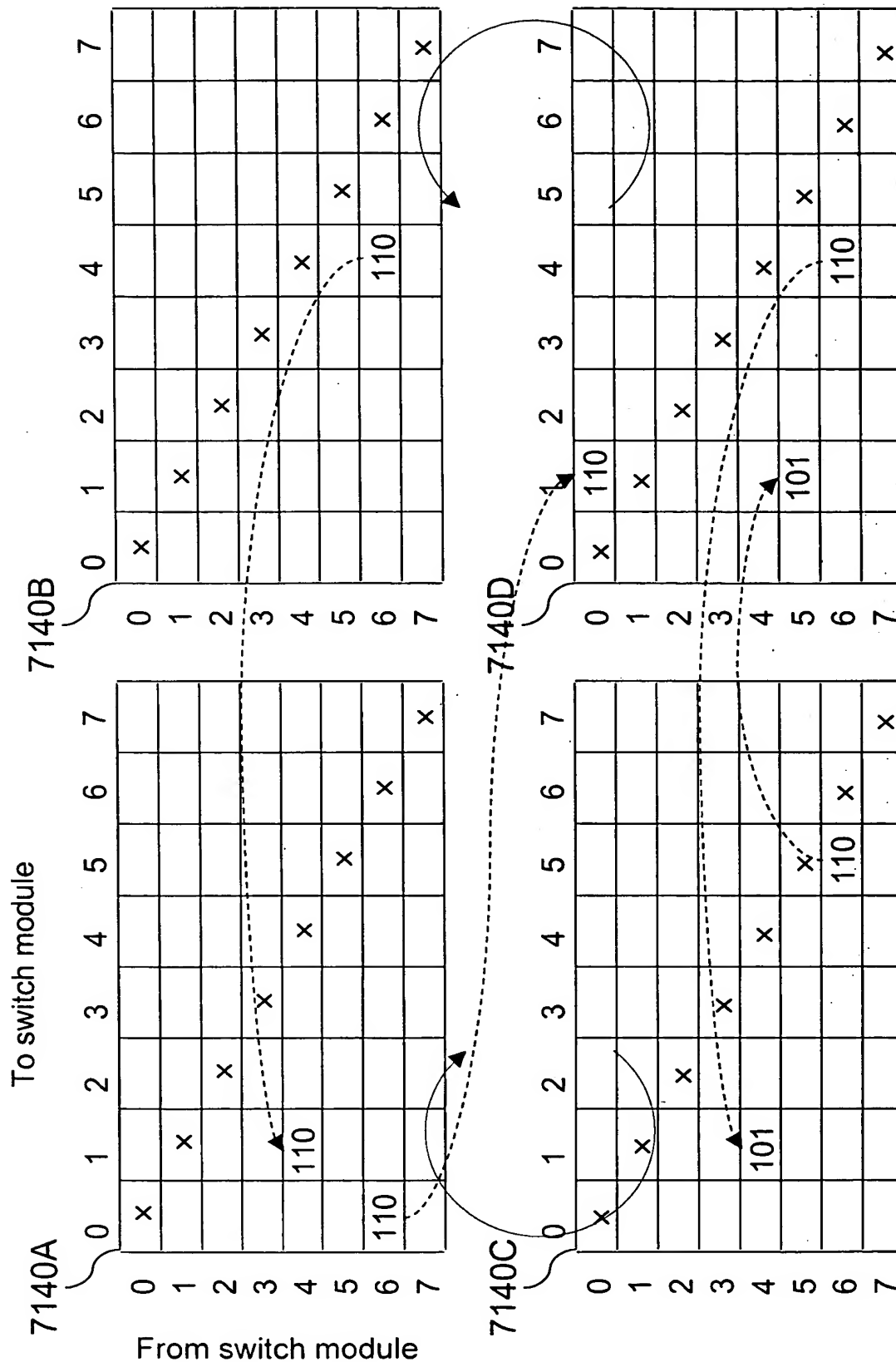


FIG. 71

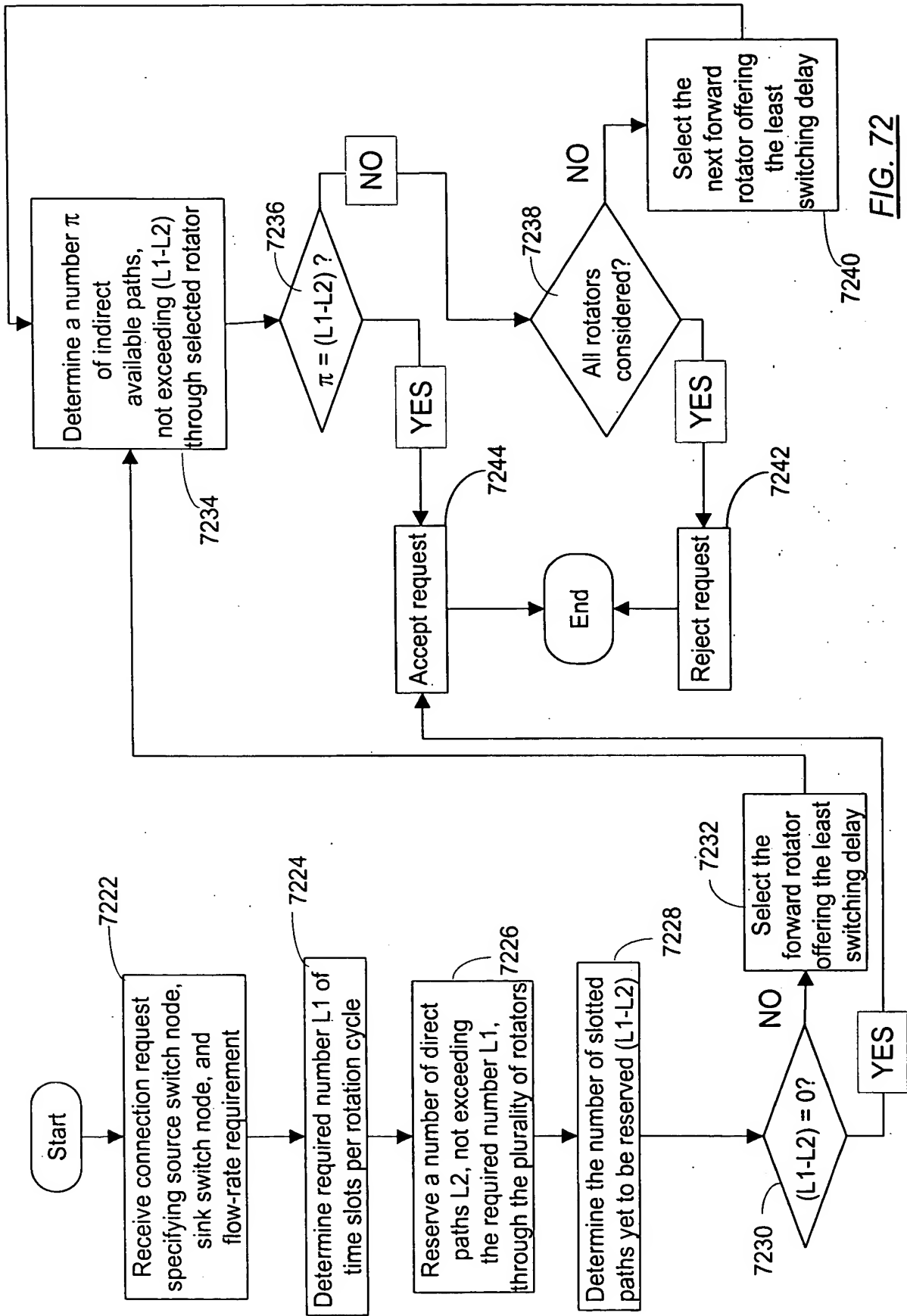


FIG. 72

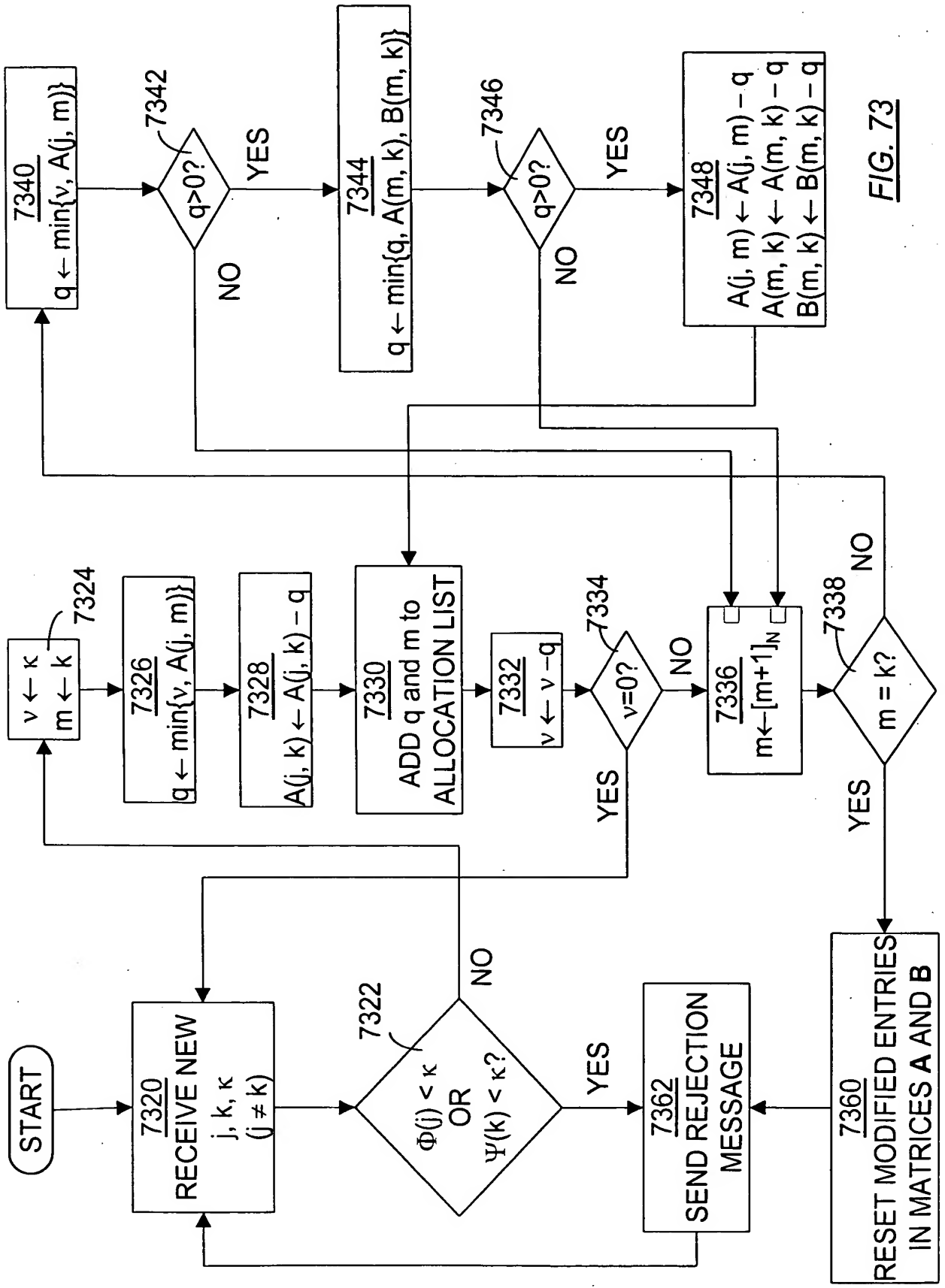


FIG. 73

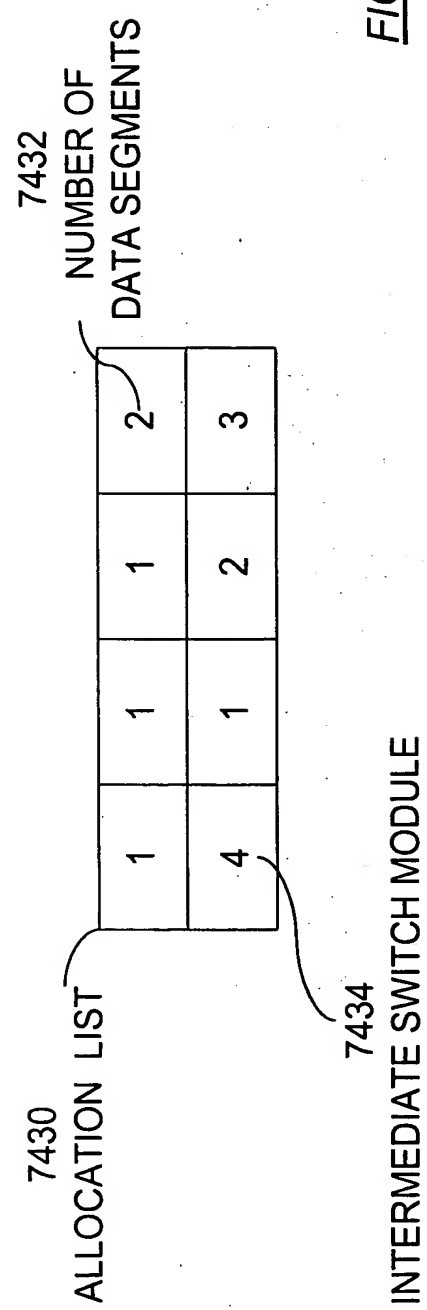
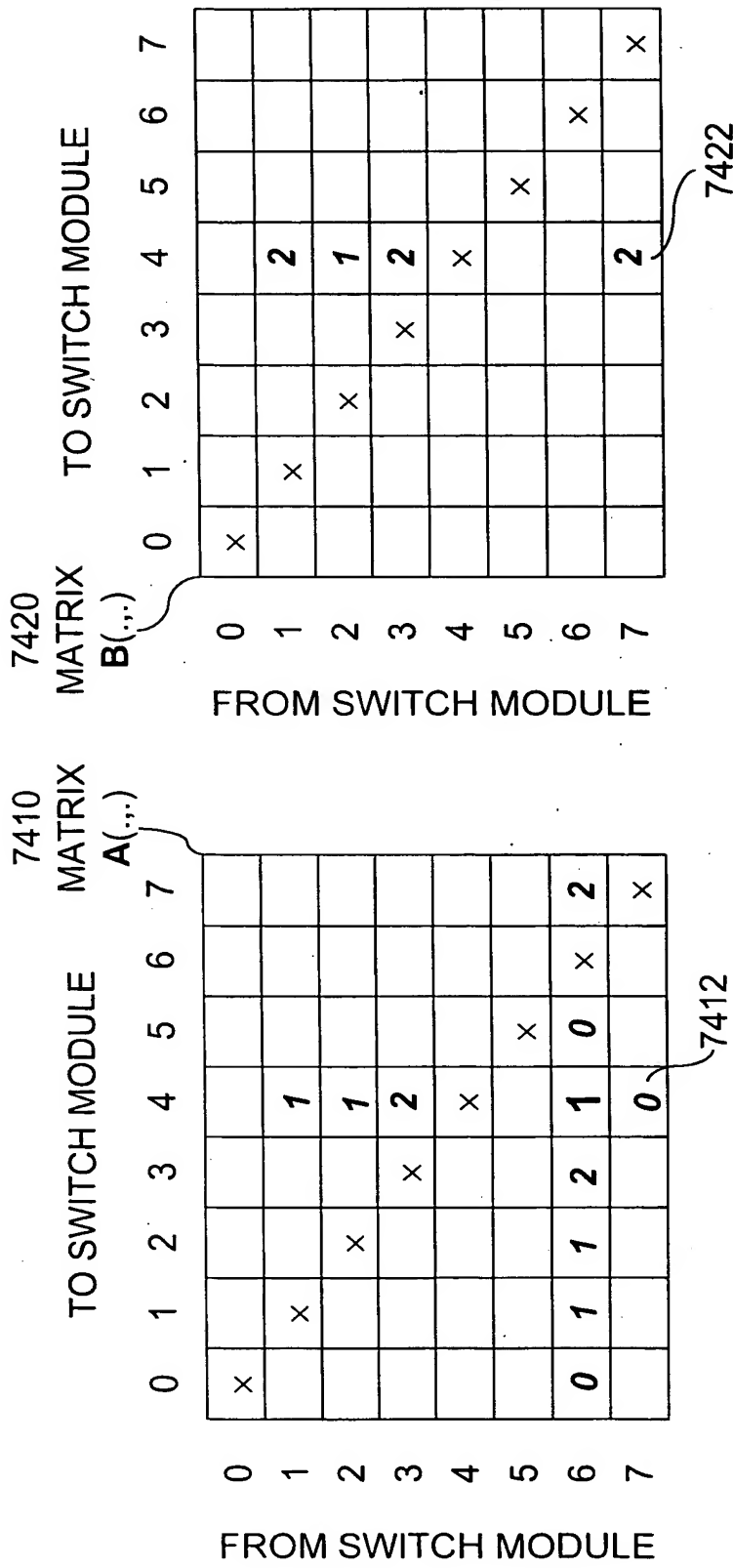


FIG. 74

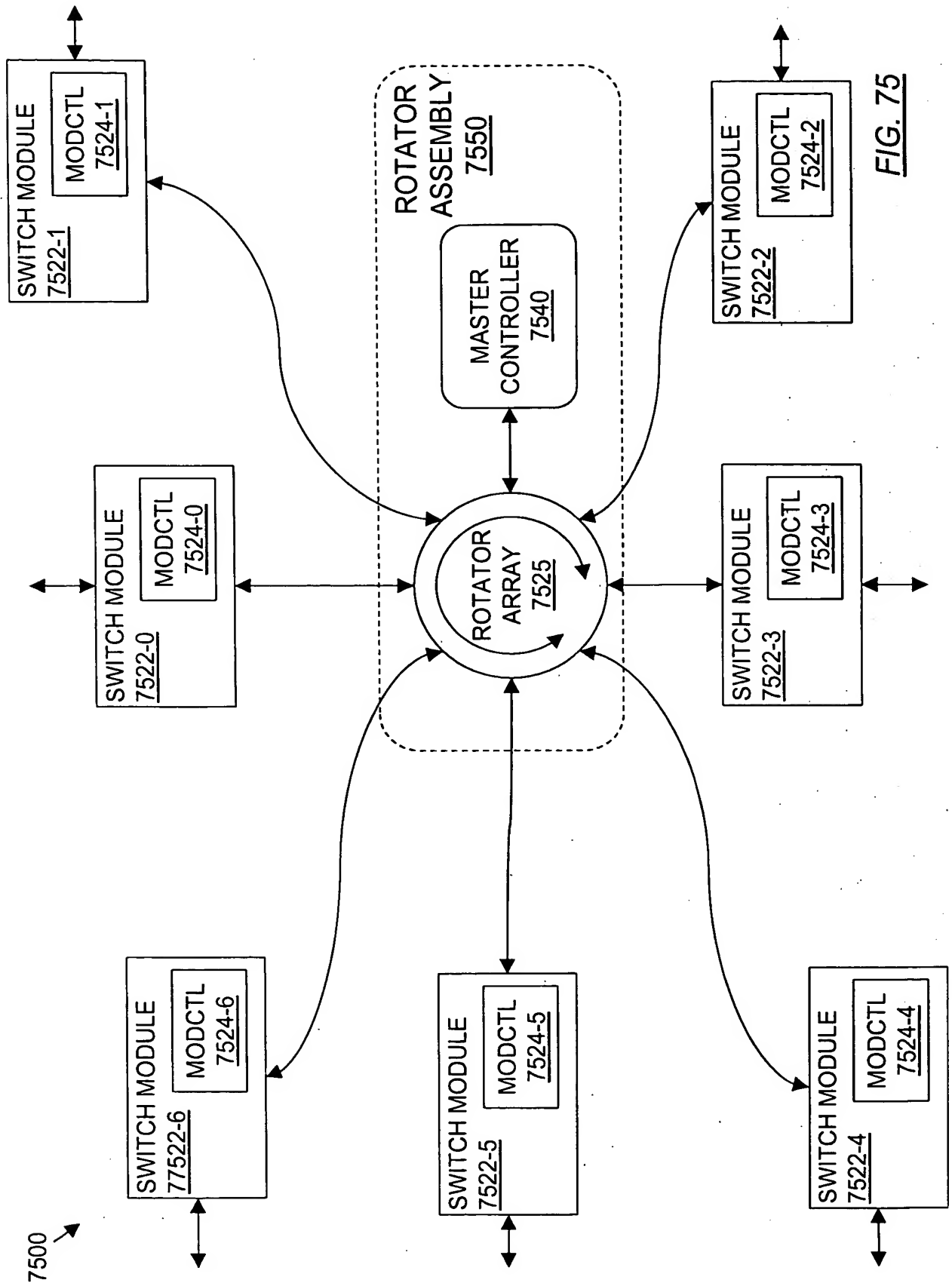


FIG. 75

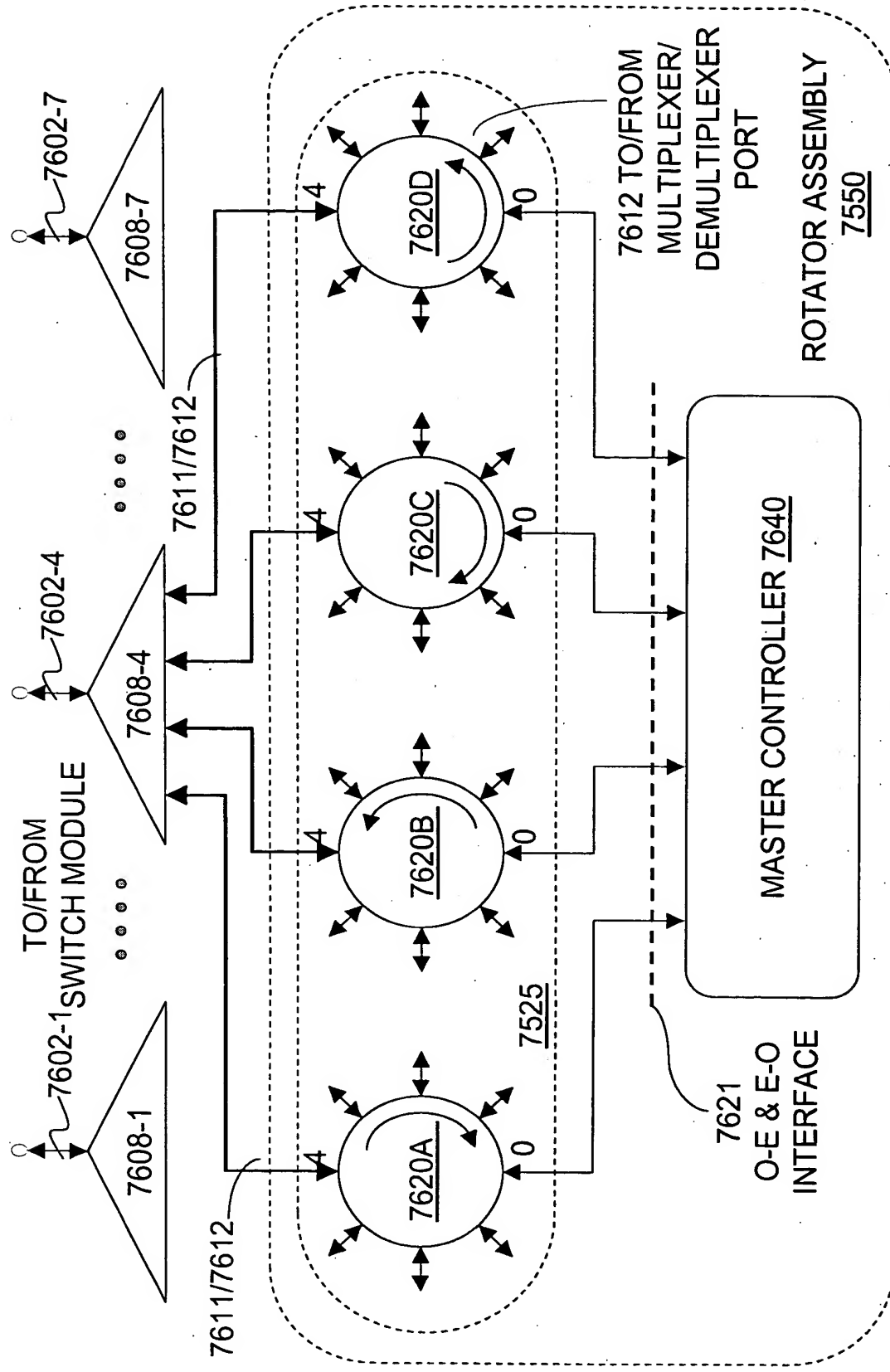


FIG. 76

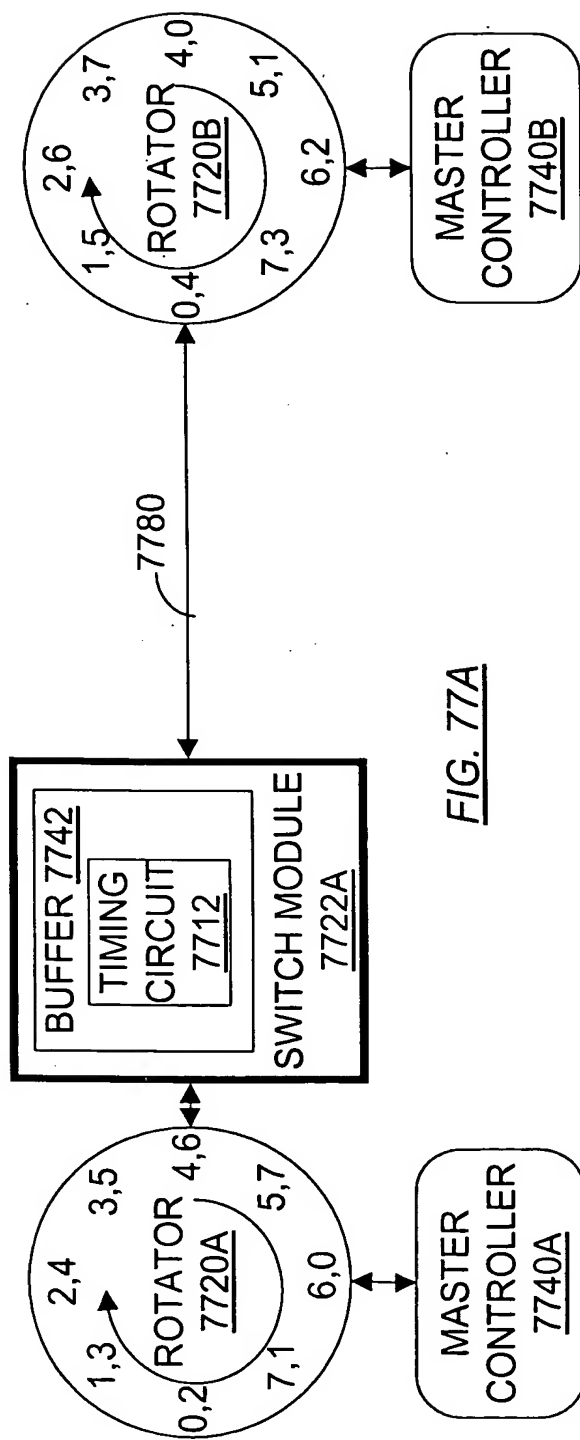


FIG. 77A

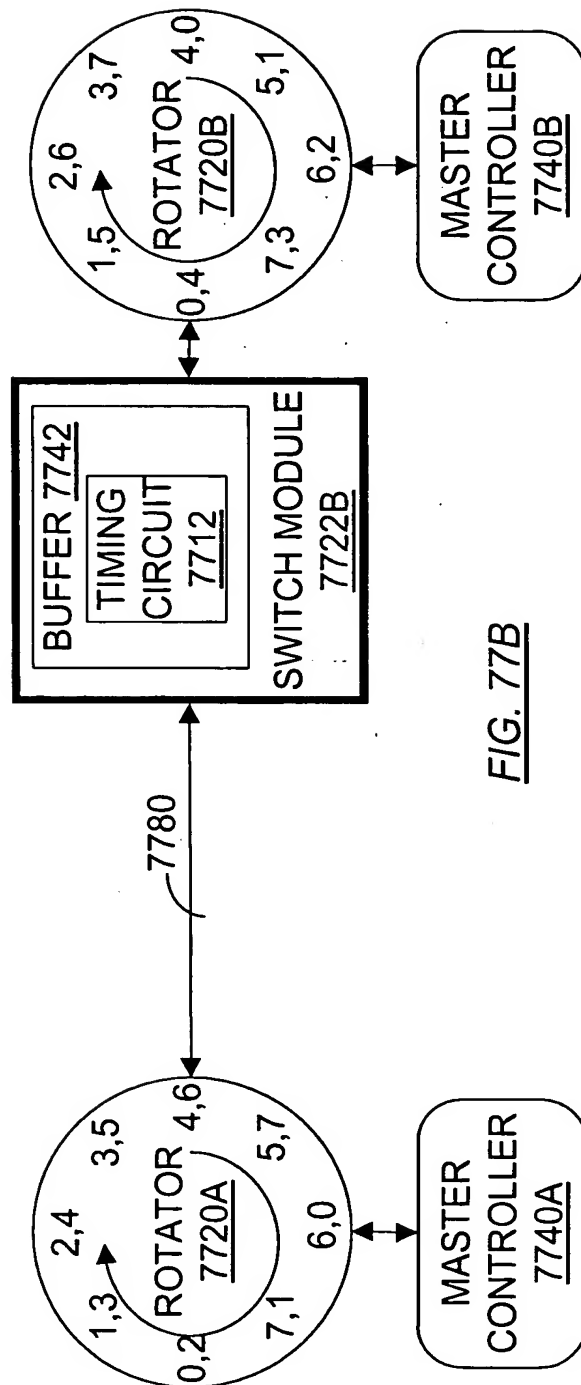
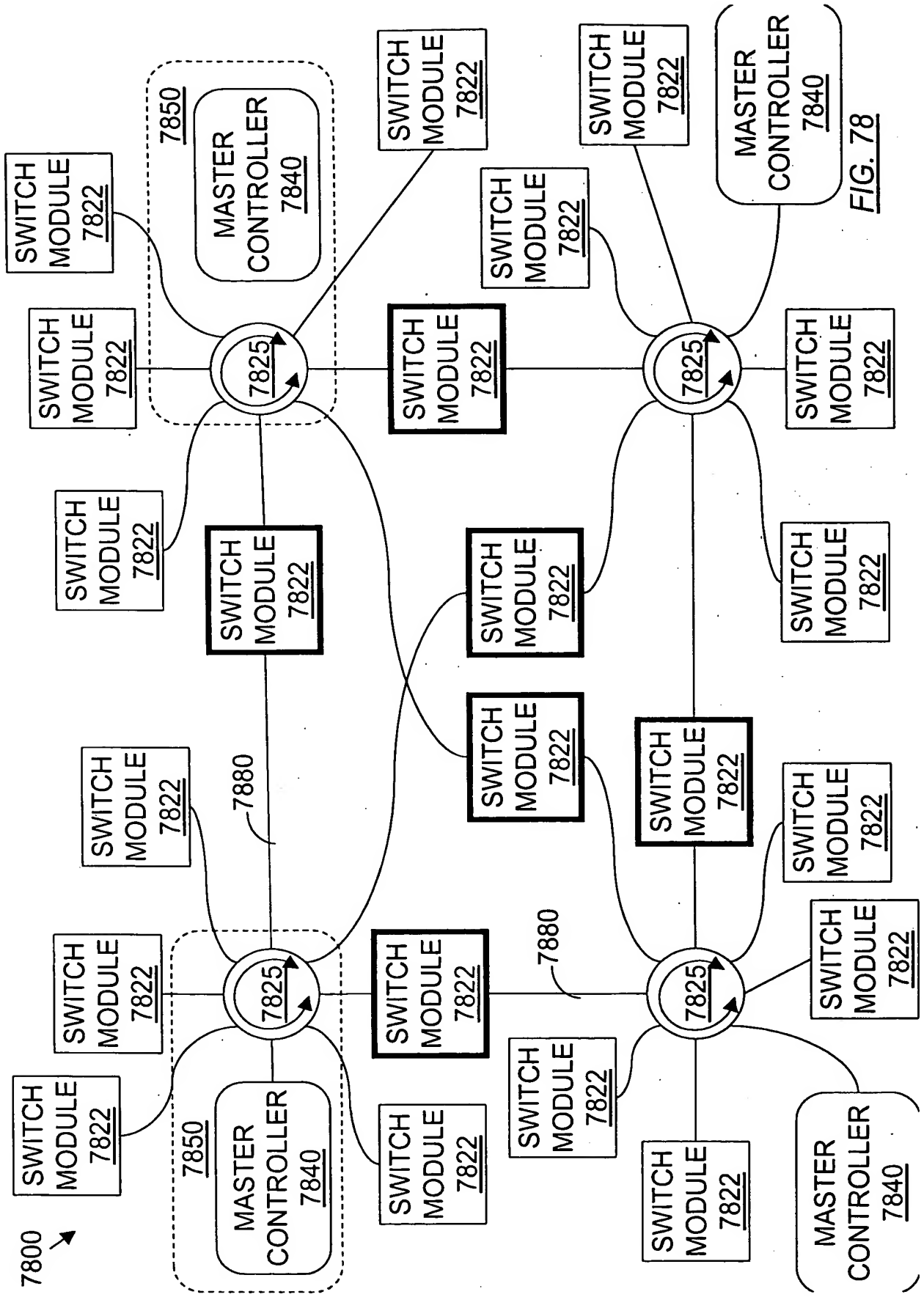


FIG. 77B



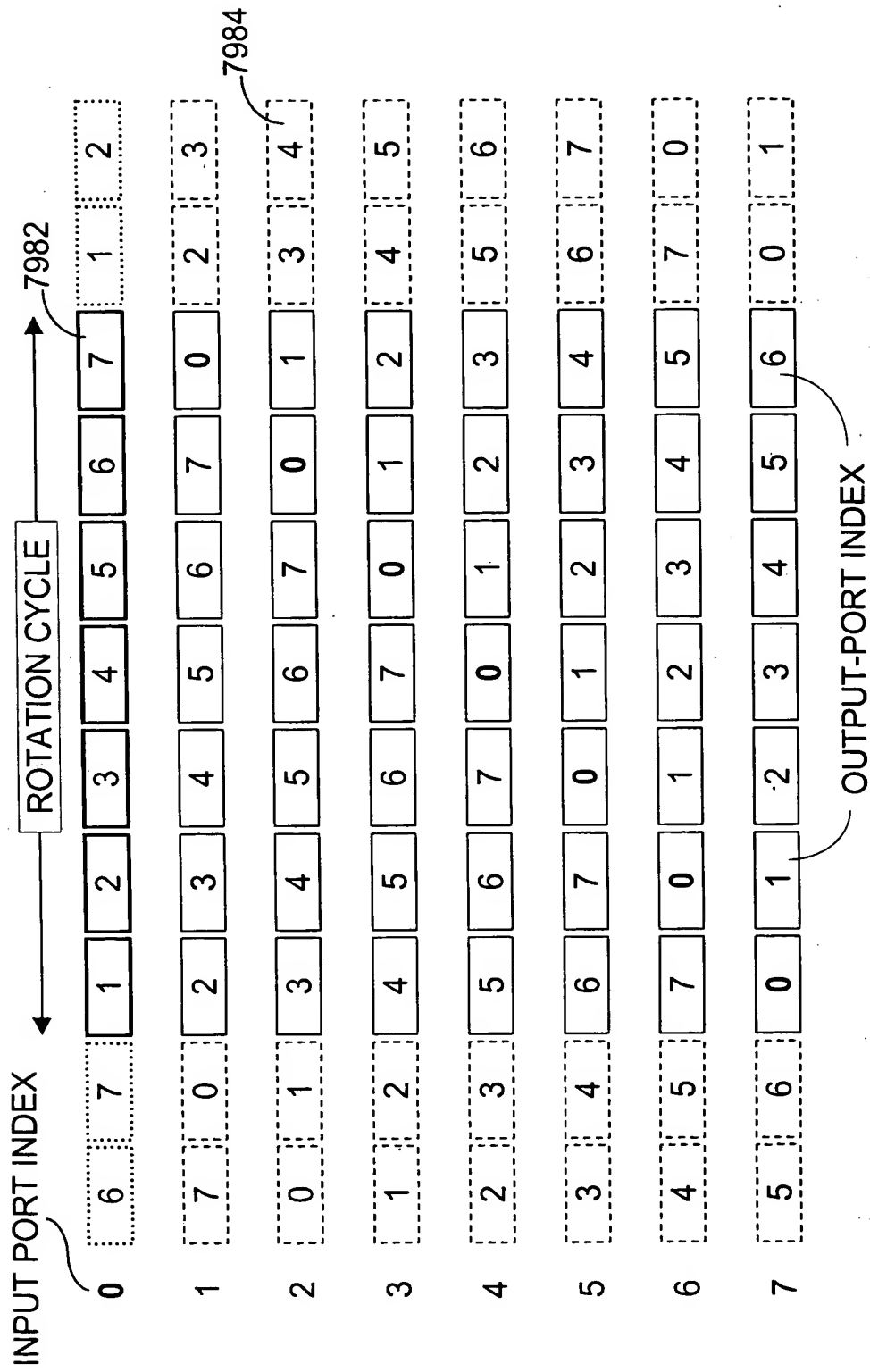


FIG. 79

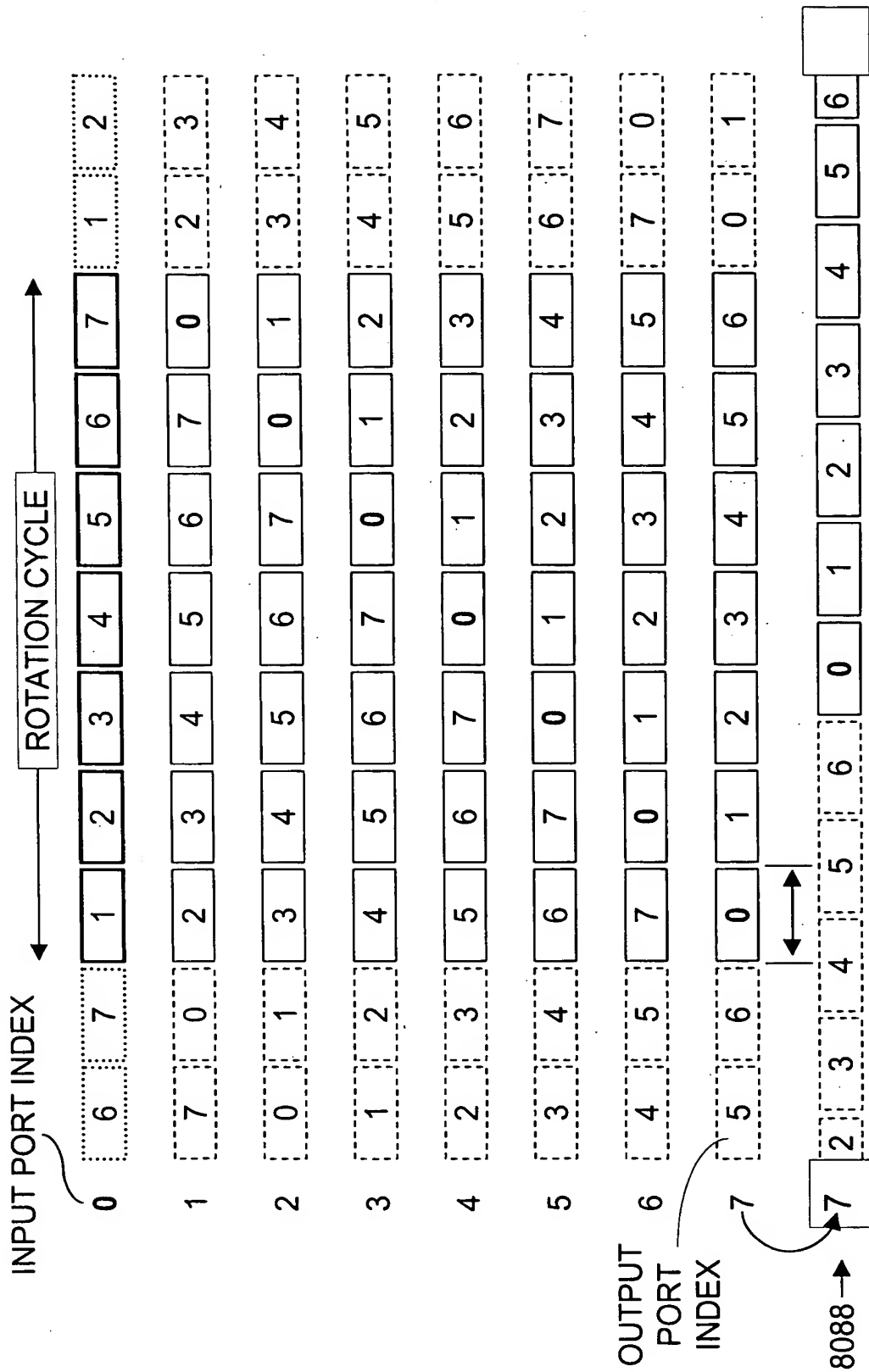


FIG. 80